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# COMPUTER MUSIC

FEBRUARY 2023 / CM317

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FUTURE

REVIEWED

## CHERRY AUDIO GX-80 AND GFORCE ODDITY 3

Classic synths in software on test

INTERVIEW

## LYKKE LI

Create dreamy synth pop hits on a laptop

WORKSHOPS

## BECOME A MIXING MASTER

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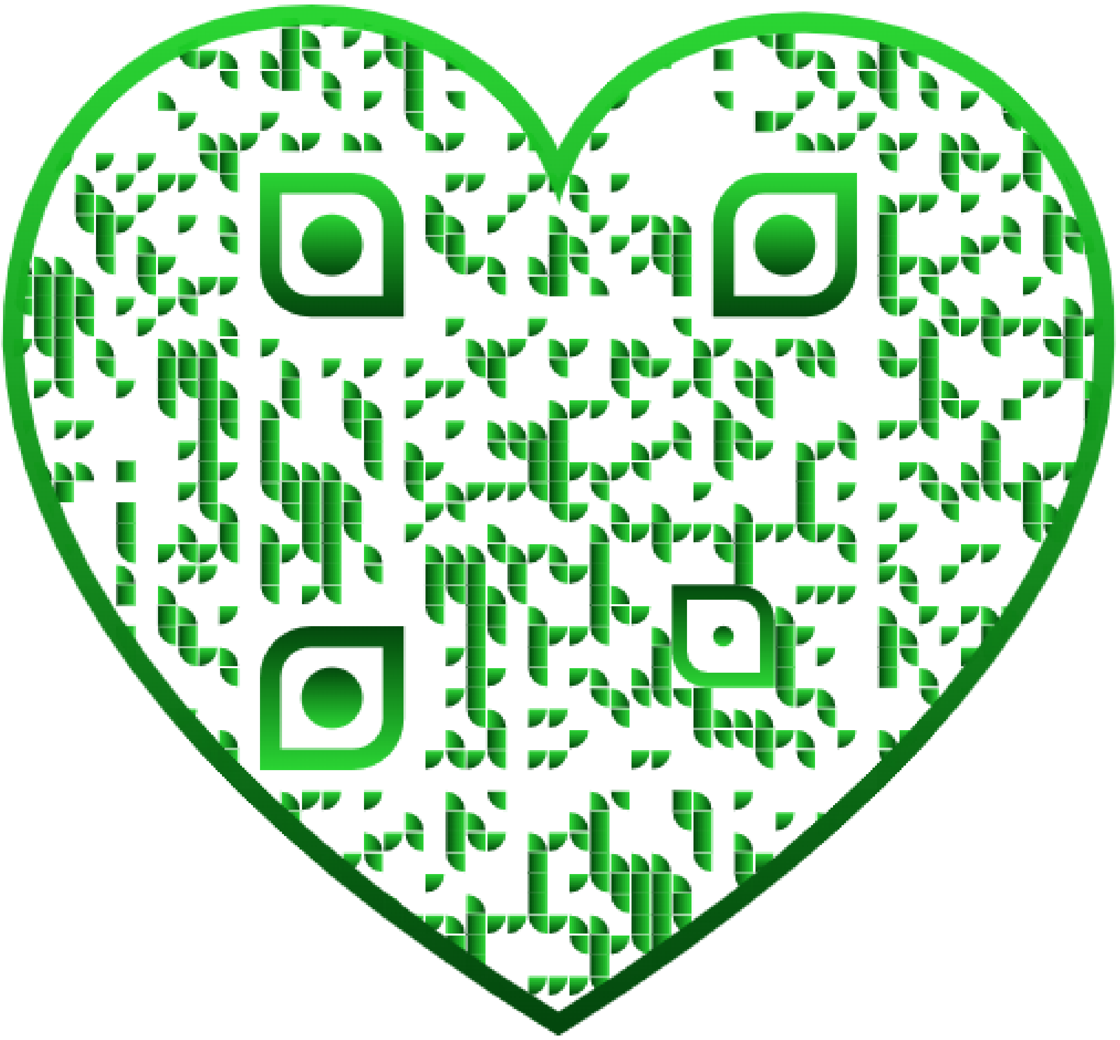

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# welcome

The ending of a year – and as you read this, it should be the closure of 2022 – can often feel like an exaggerated full-stop, and then a moment for some reflection on the previous 12 months. In magazine parlance that usually means summing it all up and choosing our best bits. We don't usually do such an obvious 'thing' in *Computer Music* but in this issue have certainly grabbed 2022 by its sometimes not so welcome horns to shake down the best parts. There's free software aplenty (of course) with a selection of the best plugins we've added to our suite this year. Then there are our best sample giveaways of 2022, and roundups of what we consider the essential synths, instruments, hardware and effects of the year. In the middle of all that noise is one of the best compression features we've ever run – surely the most underrated of music production techniques. All in all it's a bit of a change for us as, like I say, we don't really 'look back' so much as look forward.

"We don't really 'look back' so much as look forward"

Which leads nicely to resolutions – the ideal way to look ahead and which are something we all love, of course. Now we've (finally!) got rid of FileSilo (see last month's Welcome for more on that, plus all our downloads at bit.ly/cm317downloads) I don't really have any resolutions left. Except to get less stress and more hair. Same as 2021 then. And 2020. And '19, '18, '17, '16, etc etc.

Andy Jones **Editor**
andy.jones@futurenet.com

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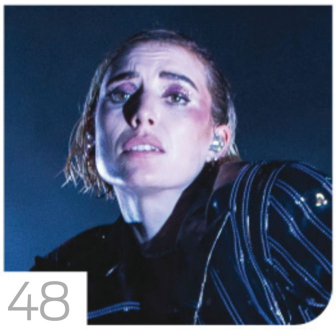
Swedish artist Lykke Li's brand of indie-folk has always had deep electronic roots. We caught up with her and long-time production collaborator Björn Yttling to discuss the new album – and the joys of working in ABBA's former studio

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## cm/plugin suite

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More than 80 plugins for free. All you need to get started in music production! Learn more about the suite in this all-new PDF

# Best of the year Softsynths

2022 was a great year for synths... if you liked emulations of classic hardware, that is. 2022? 1982 more like. Here are our six favourites of the year...

## Cherry Audio GX-80

### €59 10/10 cm317

We're only allowing one synth per developer in this roundup, otherwise CA may well have cleared up. But they kept their best synth until last: this Yamaha CS-80 emulation (review on p60)! "They've elaborated upon the original machine, and created the most impressive visual and sonic spectacle available in software."

**www.cherryaudio.com**

## Roland Jupiter-4

### $199 9/10 cm313

The Roland Cloud/ standalone Jupiter-4 emulates a classic synth that is far more than 'just' a half-pint Jupiter-8. "This is a reincarnation of a true Roland classic, with an appealing ease of use that will reward extensively through its sonic return."

**www.roland.com**

## GForce Oddity 3

### £119.99 10/10 cm317

Very probably the best emulation of possibly the greatest synth, the ARP Odyssey, gets a v3 makeover and it's a cracker. "We love this software emulation more than any other softsynth; it's a fantastic update and classic synth in its own right."

**www.gforcesoftware.com**

## BLEASS **Megalit**

**€99** **9/10 cm316**

Megalit is only one of two non classic synth emulations here but shows how impressive softsynths can be when let loose from the usual classic architecture. "A super-versatile synthesis engine wrapped in an ultra-intuitive GUI, You may just have found yourself a new favourite synth."

**www.bleass.com**

## Moog **Animoog Z**

**$19.99** **10/10 cm306**

Like other Moog iOS apps, Animoog now runs on macOS too, but unlike all the other synths here, this is a new synth and not a classic emulation, and all the better for that. "A really impressive, tactile and sonically interesting synthesiser, which would be worth the money at five times the price."

**www.moogmusic.com**

## Softube **Model 82**

**€99** **10/10 cm312**

Softube's 'Model' range of emulations recreates a famous synth from the year indicated by the name (so 1982 in this case). This is one of the best SH-101 emulations out there, simple as that. "Softube's production-ready software recreation succeeds in both sound and ease of use. It's a future classic".

**www.softube.com**

# Best of the year **Instruments**

We've covered synths, but what about your other software instrument needs? Well, it turns out 2022 was a classic for those too. Here are our six best...

## Wave Alchemy **Triaz**

### £120 9/10 cm307

Wave Alchemy named Triaz for its triple-layered sound engine, and with 10,000 individual samples and over 600 presets, this is more than the ultimate drum machine. "As a creative workstation, Triaz excels as a competent sound design processor, a peerless polyrhythmic generator and an idea-forming beat-hub."

**www.wavealchemy.co.uk**

## Orchestral Tools **Habitat**

### €229 9/10 cm308

Synths, acoustic orchestral instruments and nature, all in one amazing instrument which is a dream collaboration between OT and Dominik Eulberg. "The blend of instrumentation is sublime. If textures and pads are your goal, Habitat is a class leader in sonic diversity and interest."

**www.orchestraltools.com**

## Toontrack **EZdrummer 3**

### €165 10/10 cm310

The EZdrummer ecosphere is now at huge proportions, with a vast array of sample expansion and MIDI groove packs. And with this v3 release, the software at its centre is a sizeable update: "EZdrummer has always been the drum suite of choice, and the update to EZD3 merely seals the deal. It is stunningly good!"

**www.toontrack.com**

# UVI **Augmented Orchestra**

## €299 10/10 cm313

Everything from processed acoustic instruments, through analogue tape, to modelled instruments and synth stacks and textures. It brings "a superb production-ready palette straight to your DAW, and it's ready for action!"

**www.uvi.net**

# Heavyocity **Symphonic Destruction**

## £325 10/10 cm305

Not a typical string sample library, more of a meticulously crafted chaos machine. "This is aimed squarely at team blockbuster. Its sounds are big, brash and utterly brilliant. It is the ultimate means to wrangle the most epic scores."

**www.heavyocity.com**

# East West **Forbidden Planet**

## £245 9/10 cm315

We finish 2022's best instruments by going off world to a land of opportunity and adventure… East West's sci-fi library is "a dense star field of malleable textures, synths and ever-shifting drones and FX. All the space-faring sound you could need."

**www.soundsonline.com**

# Best of the year
# Software effects

2022 was an absolute belter for software effects! It was tough to narrow it down to just six, so these really are as amazing as effects get...

## Minimal Audio
## **Morph EQ**

**$49 10/10 cm314**

Morph EQ can be used for morphing effects, as well as more typical EQ duties. It aces both processes, making it one of the most creative plugins we've used this year. "Morph EQ takes your regular EQ interface and injects it with some real time manipulation for awesome filtering effects."

**www.minimal.audio.com**

## Caelum Audio
## **Flux Pro**

**£50 10/10 cm311**

There aren't many effects plugins out there that would deliver quite this much power for so little outlay. "Caelum are gradually building an impressive stable of plugins. Flux Pro is their most powerful to date and it's a fantastically creative offering."

**www.caelumaudio.com**

## Arturia
## **eFX Fragments**

**£80 10/10 cm309**

Arturia, of course, are well known for their synths, but they can do the odd effect too, as this granular reshaper proves: "eFX Fragments is among the most rewarding sonic manipulation toolkits that we've ever had the pleasure of testing."

**www.arturia.com**

## Devious Machines **Infiltrator 2**

**£99** **9/10 cm315**

A highly creative multi-effects processor and if you're after an all-in-one creative toolbox, we think it's well worth it. "Infiltrator 2 is exactly what you want for a brilliant plugin – the same, only better. Awesome stuff."

**www.deviousmachines.com**

## PSP Audioware **PSP Saturator**

**$99** **10/10 cm306**

PSP went for a complete overhaul of a plugin that delivers everything from subtle enhancement to deep saturation. "A highly flexible, well equipped processor that delivers a vast array of tape and valve saturation effects."

**www.pspaudioware.net**

## Cableguys **ShaperBox 3**

**€99** **9/10 cm317**

ShaperBox 3 is an update to a multi-effects tool that is the most powerful plugin you can get for the cash, and really allows you to master your effects. "It allows you to apply loads of dynamics and achieve the outcomes you want, and with audio and external triggering it's now more powerful than ever."

**www.cableguys.com**

# Best of the year **Hardware**

Need some additional hardware to add to your software studio? Here are the best additions you can make right now...

## Audient **EVO 16**

**£400 9/10 cm313**

Audient plumb their iconic expertise into an impressive range of interfaces, and this is perhaps their best yet: “The healthy channel count and sleek design should appeal. But the most appealing thing about EVO 16 from anybody’s point of view, is that it gives you all of this at an exceptionally competitive price.”

**https://evo.audio**

## Røde **NTH-100**

**£145 10/10 cm311**

Can Røde’s first attempt at headphones be anywhere near as good as the company’s microphones? That’s what we asked. And answered: “The NTH-100s have a brilliant design and sound that will shake up the worlds of both mixing and listening headphones. We can’t recommend them enough.” They’re good then.

**www.rode.com**

## Apple **MacBook Air M2 £1249 9/10 cm314**

Apple’s latest laptop is the company’s lightest and sleekest. It’s not cheap but is quiet, cool and brilliantly designed. “After making music on laptops for more than 20 years, the Air M2 is finally the music production laptop we’ve been waiting for. Pricey, yes, but it’s a powerful and very good music machine”.

**www.apple.com**

## Nektar Impact GX Mini

**£60** **9/10 cm307**

As mini-controller keyboards go, they don't come more feature-packed than this beauty. The ridiculously small design hides some brilliant extras and also includes a "rare playability at this price point and size". Small but perfectly formed, you might just add.

**www.nektartech.com**

## IK Multimedia iLoud Precision 6

**£999** **9/10 cm316**

As expensive as these might seem, the Precision 6s deliver the sound and features of speakers costing a lot more and "offer a hell of a lot of speaker and specs for the cash. Some of the best speakers we've auditioned."

**www.ikmultimedia.com**

## Beyerdynamic DT900 Pro X

**£219** **9/10 cm305**

Open back headphones like these do not offer the kind of isolation you might like, but do deliver an immersive experience when mixing. "You are more 'in it' rather than examining it, but you get exceptional quality for not a lot of cash compared to some phones."

**www.beyerdynamic.com**

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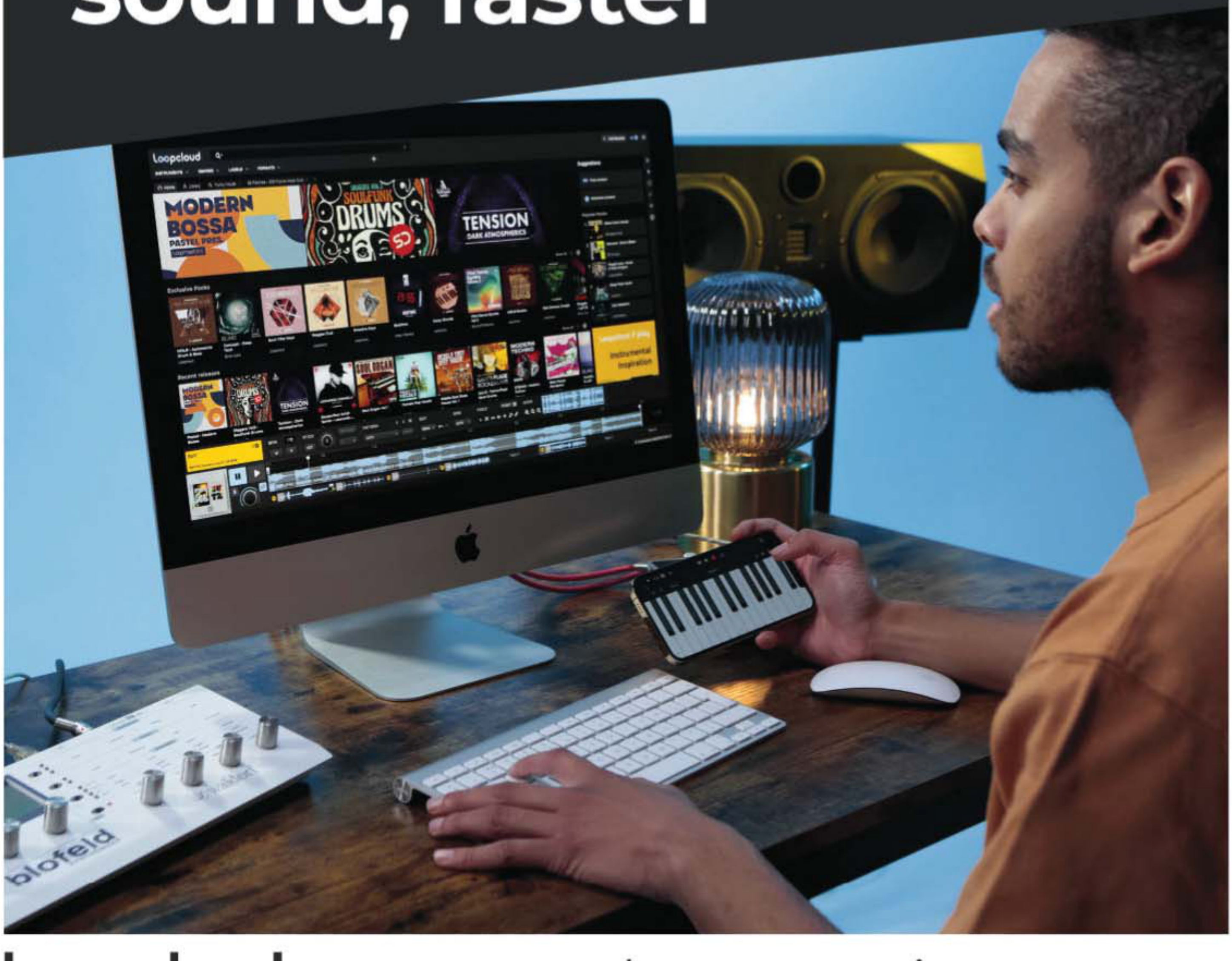

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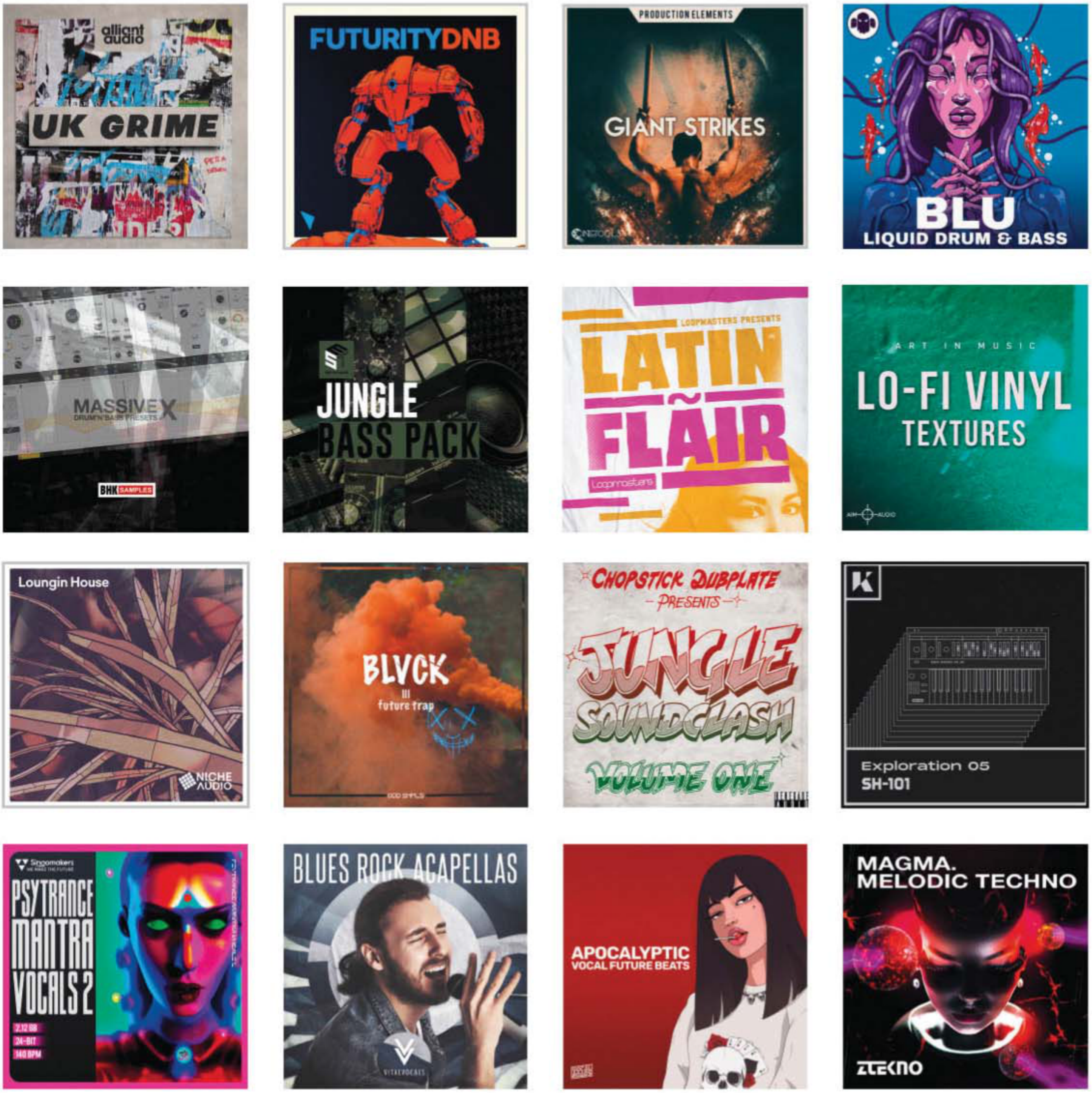


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# GET DYNAMIC

## Dynamic processing is one of the most useful – and misunderstood – parts of music production. Here's how to master this most important and creative of processes, forever!

**> Music would be very boring indeed without variation, and that's exactly what musical dynamics are all about: variations in loudness. Examples might be a quiet verse leading into a loud chorus, a synth line that gradually increases in volume, some notes within a pattern played louder to accent them, a singer belting out certain words for emphasis, and so on. There may be unintended variations too, such as a bassist or drummer unable to play each note or hit at a constant volume where required.**

Fixing unintentional problems is one thing, but even deliberate accents and changes in volume will almost certainly need some control to fit the norms of what we as listeners expect to hear in a finished, cohesive mixdown, free of unexpected jolts in level and excessive variance. While mixing, you may also discover a build-up of low-level sounds such as background noise – too much of this can pile up, resulting in a cluttered, unclear mix.

So what can we do about all this? How can we get dynamics under control to create a solid, professional mix? Well, you could use volume automation to briefly turn down any overly loud notes, to cut out background noise, or to bring up the level where required, and so on… But that'd be a right old hassle. There's got to be an easier way, right?

You're in luck: help is at hand in the form of the many dynamics processors available to the modern producer, such as compressors, expanders, noise gates, transient shapers and limiters. These effects take the hard work out of managing levels, and in fact, they are more than mere functional tools, offering the possibility of imparting such qualities as character, 'glue', movement, punch and snap to your tracks when used wisely. For even greater precision, power and flexibility, there's frequency-conscious compression, multiband dynamics and parallel processing.

Now the bad news: Dynamics processors are not especially intuitive, and many producers struggle to understand how they really work, which sometimes results in them doing more harm than good. What you need, then, is a solid grounding in the fundamentals of how these vital mix tools work, of the scientific-sounding terminology that goes along with them, and the tried-and-tested techniques and starting points that'll allow you to use them with confidence. And – wouldn't you know it? That's exactly what we've prepared for you right here! Now fire up your DAW, open your plugin folder and get ready to *Get Dynamic* once and for all…

# Introducing dynamics processors

When we talk about adding, reducing, changing or enhancing dynamics, we are, in essence, talking about manipulating volume levels. Dynamics exist at both a macro and micro scale, with the former concerning overall track levels and the latter the dynamics specific to a sound's own amplitude envelope. The key tools we have for macro dynamics include broad-brush techniques such as song instrumentation, fader level rides and simply muting elements at certain times. At the micro scale, we *can* use these same techniques, but the vast majority of micro dynamics are handled by a set of tools called dynamics processors.

To understand what a dynamics processor is and how it works, let's look again at how a sound's levels change over time. Typically, it will have an attack stage, a sustained stage and a release. As an example, a piano note may have a sudden loud attack, preceded by a fast fade down to half the attack's maximum level, then a much longer tail fading out to silence over time.

So, there are differences in level between a sound's loudest and quietest parts, and we may want to change those differences, enhancing the quiet parts, lowering the louder parts or removing the quietest parts altogether.

Dynamics processors are level-dependent effects that allow us to do this in real time, based on the incoming signal level and parameters we set on them. Typical tools are compressors, limiters, gates and expanders, but we can also add to the list de-essers, duckers, 'enhancers', frequency-conscious compressors and multiband dynamics processors. There are also transient shapers that impose a user-adjustable envelope, triggered by the transient of a sound.

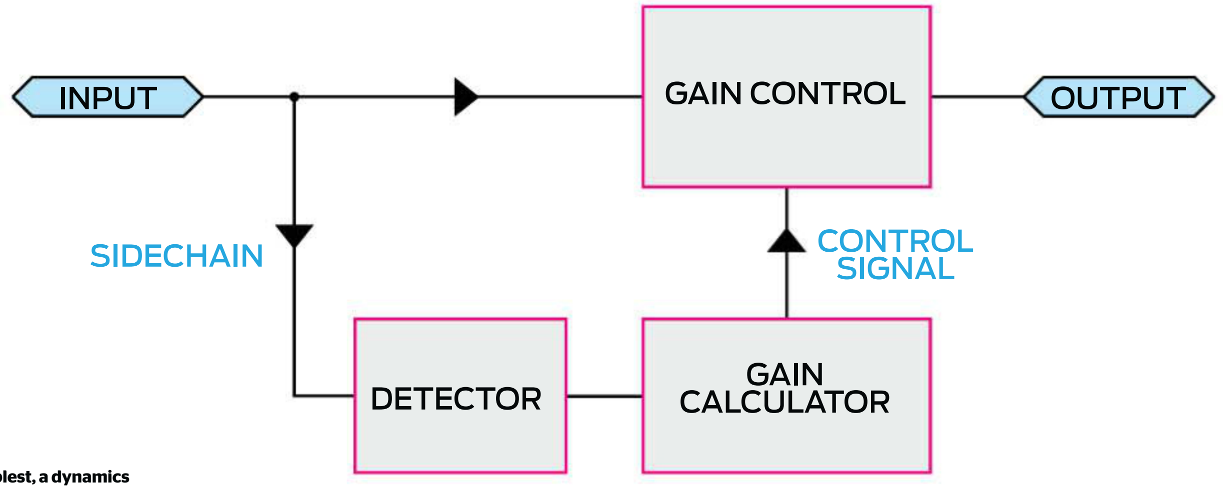
## Making a good compression

So how do these devices work under the hood? Before we talk tech, imagine this simple – if slightly far-fetched – scenario: inside your compressor is a tiny imp with its hand on a single, plain-old volume knob that can be used to adjust the outgoing signal's level. The imp's job is to constantly monitor the level of the incoming audio signal, and if it exceeds a certain level – called the threshold – to spring into action, turning down the volume knob by a proportional amount, known as the ratio. The more the input signal exceeds the threshold, the more the imp must reduce the output volume.

There's more, though, as the poor imp has been given exact instructions as to the amount of time it should take to turn the volume knob down when this happens, whether it's a lightning-fast fraction of a millisecond, or a leisurely half a second… or something in between. This is known as the attack time. That's not all, either: what goes up must come down, and once the incoming signal level backs off, our beleaguered imp has to bring the volume level back up accordingly, again following a precise instruction as to how long it should take, known as the release time.

That is, more or less, how a compressor works, though in the real world you'd have to replace the imp with a chunk of code to continuously track the input level (known as the 'detector'), calculate how the output level should be modified (the 'gain calculator'), and then control the final output volume accordingly via a gain control. You can see in our diagram below how these core components interact.

But what of the many other types of dynamics processors? They are, for the most part, variations on the above theme, just with slightly different instructions for our theoretical imp. For instance, in an expander, the imp would be charged with *reducing* the volume whenever it falls *below* a certain level.




**At its simplest, a dynamics processor changes a signal's level based on… its level**

## Functionality versus creativity

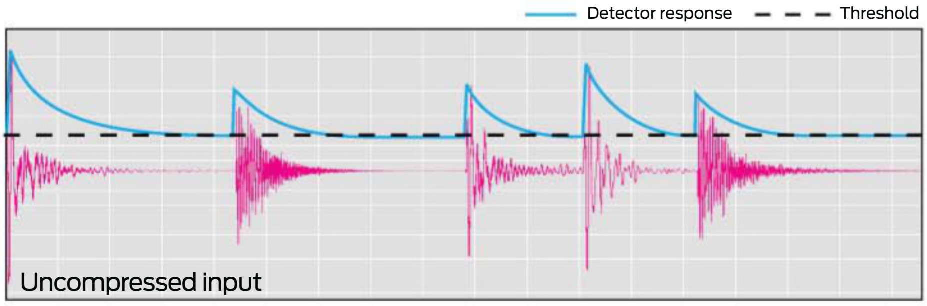
**Dynamics processors started out as purely functional devices, and in fact we can trace compressors (or leveling amplifiers as they were called) back to the early days of radio, when they were used to protect transmitters from overmodulation (and likely failure). Audio compressors in music engineering only became popular in the very late 1950s with the likes of the Teletronix LA series and Fairchild's 670. Around this time, more complex dynamics processors were also finding their way into vinyl cutting, and so-called acceleration limiters (high-frequency de-esser style limiters) were often used during the cutting process.**

**Today we still use dynamics processors for functional purposes, including compressors as gain-leveling devices, limiters to curtail peaks and prevent overloads, de-essers for softening vocal sibilance, gates/expanders for removing or reducing background noise from recorded tracks, and multiband dynamics to keep our level in check on the mix buss.**

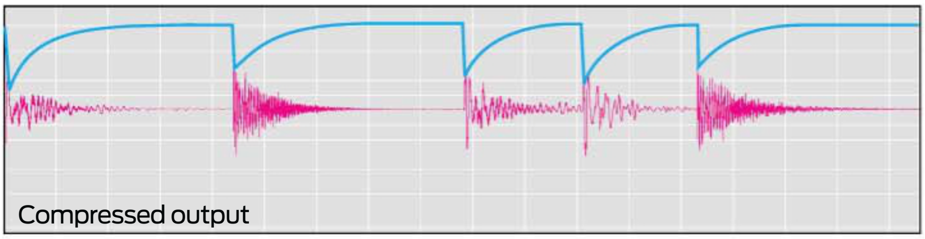
**However, useful though these are, it's the creative applications that tend to draw the headlines. One of the most common uses for a compressor is to increase an instrument's sustain, and you can easily take this technique one stage further to enhance the snappiness of shorter sounds such as drum hits. Push a compressor a bit further with a slower attack and fast release and you can start to make things 'pump' audibly. Add in a rhythmic external sidechain, such as a kick drum, and sounds can pump in time with the beat itself. That's quite a few ideas from one simple level-based processor.**

**Furthermore, you can fine-tune the attack and release stages of the compressor to shape the envelope of a sound. Or try the same thing with a gate or transient shaper. And finally, we could rig up an external sidechain for our gate and use it to create cool rhythmic effects.**

# Compression




**1. The blue line shows the detector's response to a drum beat. In our example, as each new drum hit exceeds the threshold, the blue detector line jumps up quickly (fast attack), then falls off gradually (moderate release)**




**2. Here, we've flipped the response curve upside down to help you visualise how the detector's output is used to 'push down' the signal level. The attack of each hit is now quieter, but the tail is the same level – that's compression!**

Audio or 'dynamic range' compression is a level-dependent process that reduces the dynamic range of a signal (makes loud bits quieter). When the signal level exceeds a certain **threshold**, the gain reduction kicks in.

The amount of reduction is determined by a **ratio** setting. A setting of 2:1, for example, would reduce the level of any signal above the threshold to half the amount above the threshold. Exceed your threshold by 2dB, and the signal would be reduced by 1dB; exceed it by 6dB, and the signal would be reduced by 3dB.

This does not happen instantaneously, as the compressor take a little time to make this change in volume once detected, set by the user with the **attack** control. Likewise, the user has control over the **release** time. This has a big impact on how the **gain reduction** sounds (some compressors have a meter that shows the amount of gain reduction (GR) taking place).

The basic compression concept is easily demonstrated on our transfer graph below, where you'll see that the 4:1 line above the threshold is shallower, with a slope based on the compression ratio. This method is known as '**downwards**' compression, and is by far the most common type. Certain designs reduce dynamic range by increasing the level below a threshold. This is called '**upwards**' compression and is not only much rarer, but also harder to fine-tune. Since the vast majority of compressors are downwards types, that's what we'll focus on.

## Further controls

So then, compression reduces dynamic range, but it doesn't have to make the signal quieter. This is because compressors have a so-called "**make up**" stage (either manual or automatic) to bring the overall output level back up to the original input level (or higher or lower).

There are further factors that influence how a compressor behaves. Firstly, **knee** shape: This refers to how gain reduction is introduced as the signal approaches the threshold, and can be abrupt (**hard knee**) or gentle (**soft knee**) or somewhere in between. See our graph below right for an example of soft vs hard knee.

The way the detector senses the signal can vary and two typical methods are **peak** and **RMS** (root mean squared) sensing. The former responds precisely to level changes, while the latter reacts to the average level, meaning less of a response to abrupt events like transients.

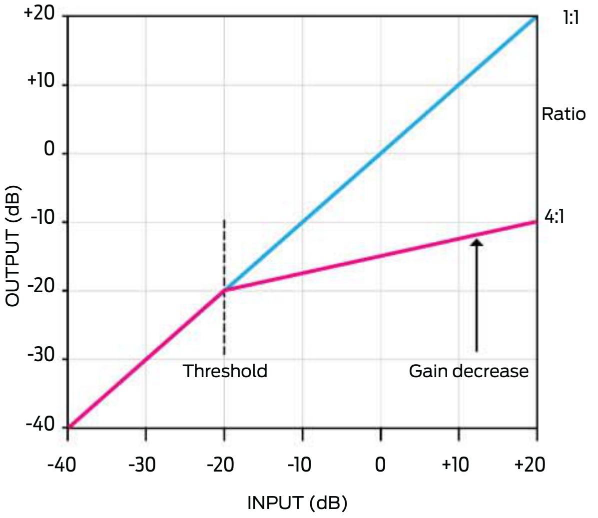
Next up, the **internal sidechain**, which is the signal that feeds the detector. In most modern designs, this is split off from the input signal, known as a **feed-forward** topology, for a precise response. Many vintage designs, however, are of a **feedback** design, where the sidechain comes from the (possibly already compressed) output signal, giving a less predictable result.

In our examples so far, the sidechain signal has been untampered with, but a compressor may have EQ or filtering applied here, known as the **sidechain filter**. For example, high-pass filtering the sidechain signal means that the detector 'ignores' bass frequencies, and they do not trigger the compression. Note that this filtering is applied only to the sidechain signal and not the 'pass through' signal that we hear.

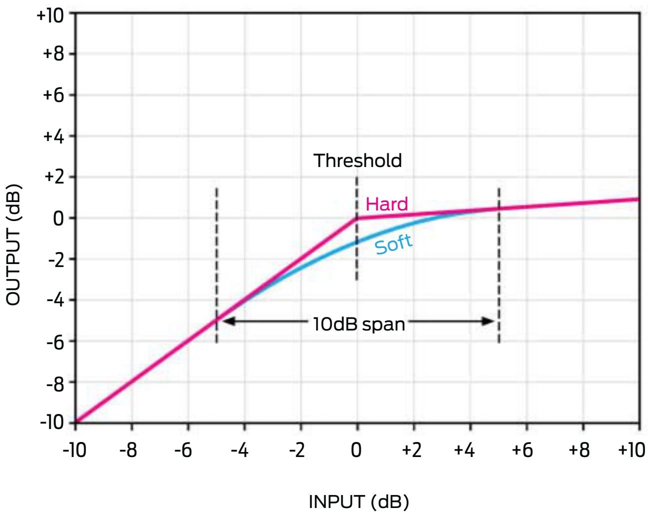
Also look out for **stereo linking**. This uses a combined left/right signal for the sidechain, to keep the stereo image solid and centred.

The **lookahead** option allows a dynamics device to see what's coming up in the signal and react to it ahead of time, for a smoother sound and the ability to catch very fast transients. Plugins achieve this by delaying the signal 'under the hood' before it hits the gain reduction stage, but sending the undelayed version to the detector, so the compressor reacts to things before they are heard. The resulting delay/latency should be compensated for by your DAW.

Traditionally, a compressor with a high ratio (10:1 upwards) was called a **limiter**, and with a very high ratio (30:1 upwards), a **brickwall limiter**. However, in the modern digital era, unless stated otherwise, limiter plugins are almost all of the **digital brickwall** variety, not allowing any signal to exceed the threshold.




**Transfer graph of 1:1 (blue) and 4:1 (pink) compression**




**The soft-knee curve here has a 10dB span, though this is purely for example**

fabfilter
software instruments

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## The classics

**A handful of classic hardware compressors have won through over the years, and you can find the vast majority of these in software form. If you're new to them, though, it can be tough to know just how to dial in 'that' sound, so let's take a look at three bona fide compression legends and give you some pointers.**

**The Urei 1176 is an FET (Field Effect Transistor) design heard on countless hit records. It has simple controls (input, output, attack, release and ratio) but can achieve extremely fast attack and release times. With fast settings, it's great for adding bite to vocals and bass. With a slower attack, fast release and high ratios, it creates amazing pumping drum overheads. Try emulations from Universal Audio, IK Multimedia, Native Instruments, Softube and more.**

**SSL's Bus Compressor is best known for its glue-like effect when applied to the entire mix via the master buss. Try the 4:1 ratio with a slow attack (30 ms) and a fast release (0.1 sec). Alternatively, use the 2:1 ratio (which has a softer knee) with a slow attack (10 or 30 ms) and the auto release. In both cases, aim for gain reduction of between 2 and 4 dB. Emulations can be had from SSL themselves, Waves, Universal Audio, and many more.**

**The valve-based Fairchild 670 commands big bucks second hand. It can work in stereo and mid/side mode and has unusual parameter labeling, such as six 'time constant' settings that handle attack and release (1 is fastest, 4 slowest and 5 and 6 more program dependent), and a DC Bias screw for ratio (2:1 to 30:1). In use, it can be great on drum sub groups, vocals and, if you can just tickle the gain reduction, on the mix buss. For emulations, check out Universal Audio, IK Multimedia, Slate Digital and Waves.**

## > Step by step

### 1. Exploring basic compression parameters

1 > With a drum part loaded (there's one in Tutorial Files), add a compressor to it – one that has a gain reduction meter – we're using CM-COMP 87 from cm Plugins. If your plugin has automatic makeup gain, turn it off, and set the Ratio to 4:1. Starting with the Threshold at 0dB, gradually reduce it until you start to see a few dB of gain reduction on the Reduc meter. Note how the output signal level is reduced.

2 > Set Attack to 50ms, Release to about 100ms, and adjust the Threshold to achieve moderate gain reduction on the Reduc meter – go for -5dB for starters. Gradually lowering the Attack, as shown, increasingly compresses the transients; lengthening it lets transients through and brings up the body of the sound. Think of the Attack as effectively adjusting the duration of transients. Set it back to 30ms.

3 > Raise the Threshold by 3-4dB and gradually reduce the Release time. As the Release gets shorter, the sound begins to pump more and the transients become more punchy. If you're not hearing it, lower the Threshold to emphasise the effect. Revisit the Attack control and try both slower and faster settings. Listen to how the Attack and Release work together to shape the compression character.

4 > Set the Threshold to -25dB, Attack to around 20ms and Release to 50ms. Now switch through a few Ratio settings. For obvious differences, move quickly between very low and very high Ratios. Ignore the metering and listen to how it influences the transients, reducing the Threshold to emphasise the effect if necessary. Focus on the subtle differences between lower Ratios such as 1.5:1 and 4:1.

5 > Because compression works by reducing the level of signals, it is often necessary to raise the output level or Makeup Gain to compensate for the loss in volume (this does not change the compression's behaviour or character). Repeatedly bypass the plugin, adjusting Makeup Gain with the goal of getting the compressed signal to a similar level as the bypassed one.

6 > Some compressors offer enormous flexibility, allowing super-fast attack/ release, various detector modes, and sidechain filtering. Live's Compressor is a case in point, and here we're using its very fastest settings combined with automatic Makeup Gain. Note how easy it is to introduce clicks and distortion, so approach these processors with care, unless, of course, this is what you want.

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# The right compressor for the job

As touched upon on in our mini-roundup of classic units, not all compressors are born equal. But why do they sound different at all? And how do you know when to use which 'type'?

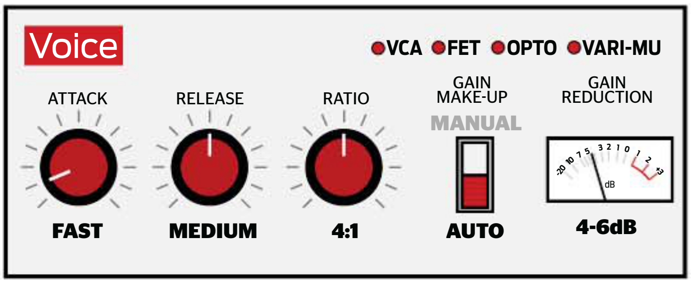
First up, going back to hardware devices, there are a few different types of detector/gain control circuit: **VCA** (Voltage-Controlled Amp), **FET** (Field Effect Transistor), **variable mu** (based on valve plate voltages) and **opto** (lamp plus photocell). VCA designs can be very flexible but often the flexibility makes them harder to use. FET designs are responsive but distort sooner, although that distortion is very musical. Opto designs have a softer, more musical attack and tend to let fast transients slip through. Finally, variable mu can be very fast in attack, however threshold, ratio and knee shape tend to all be very closely interrelated. Some units also have an **automatic release** option, where the release time changes to suit the incoming signal.

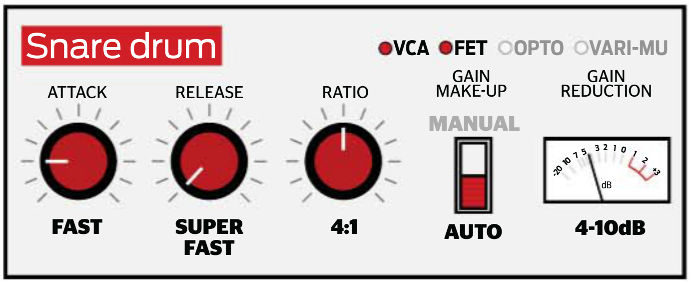
By now, you're probably a little bewildered about where to start when compressing your own signals, but worry not, as we've provided suggested 'starting point' settings to help you pick the right compressor for the job and get a basic sound on the go.

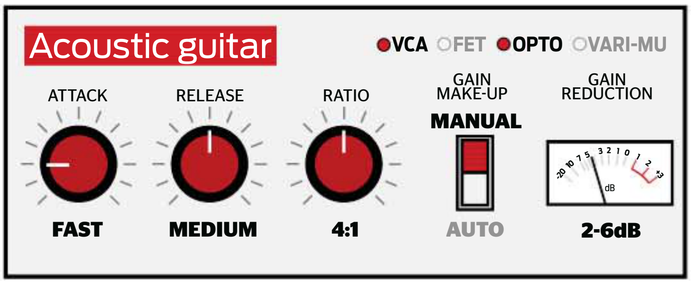
## Compression settings

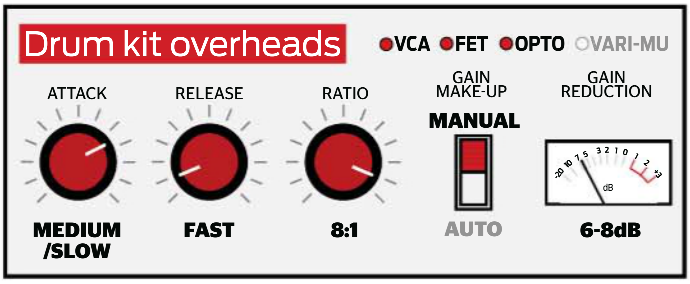
**ATTACK:**
Super fast - below 1ms
Fast - 1ms to 20ms
Medium - 20ms to 75ms
Slow - 75ms or longer

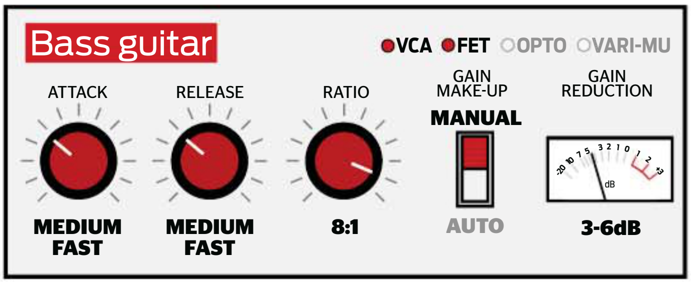
**RELEASE:**
Fast - fastest to 20ms
Medium - 20ms to 200ms
Slow - 200ms or longer

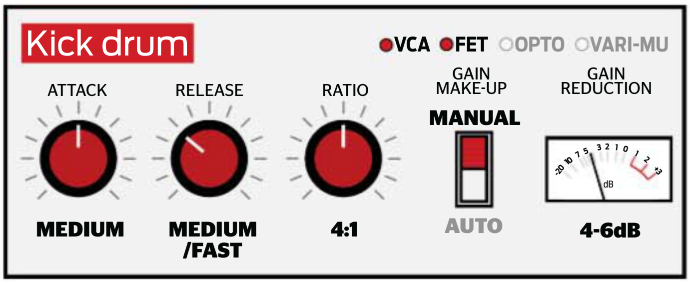


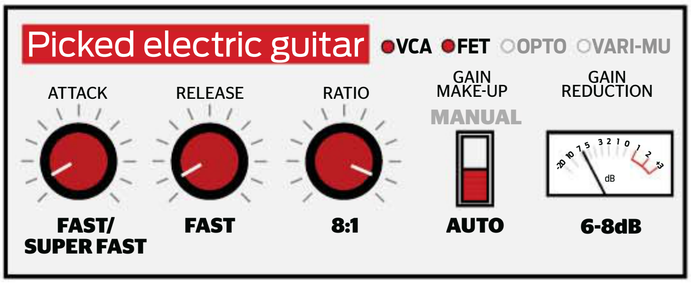



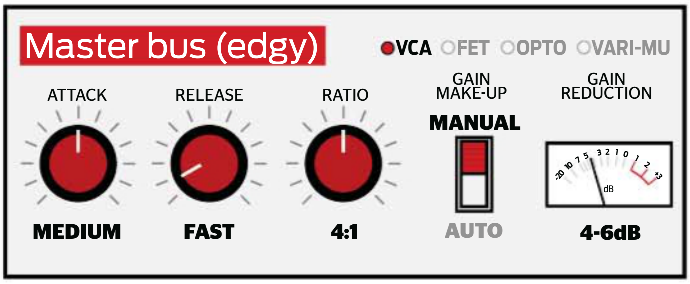



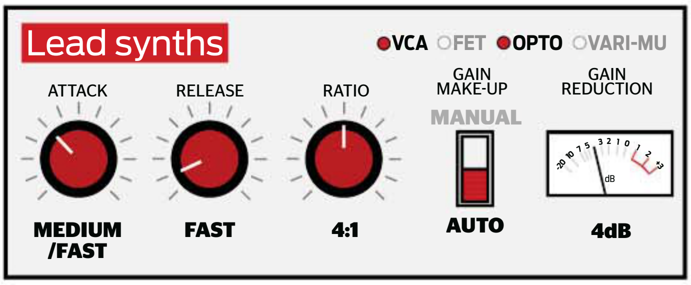



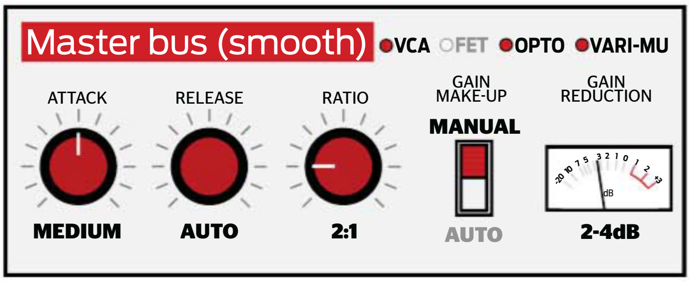



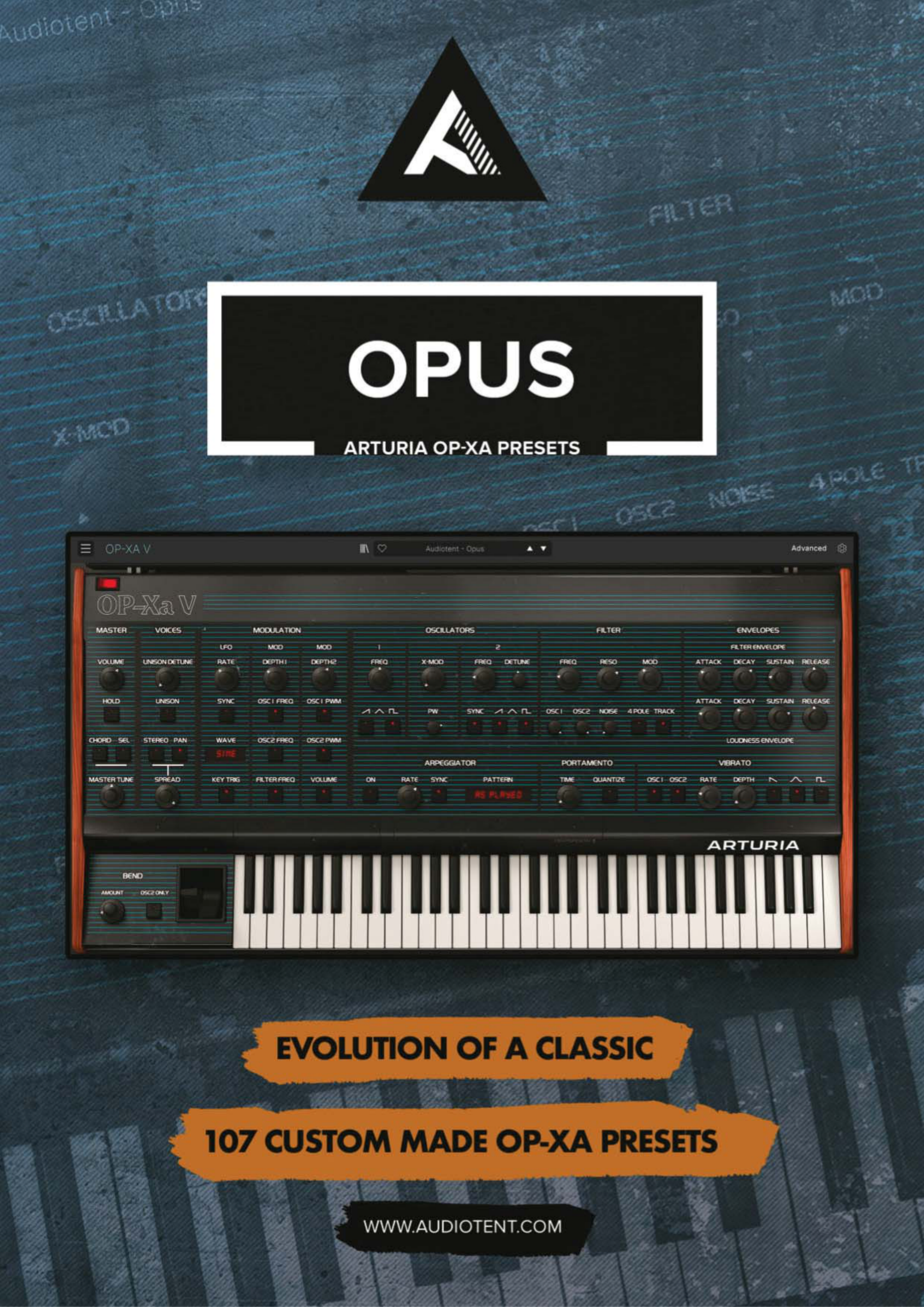

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# Frequency-conscious dynamics

As touched upon previously, some dynamics processors have filtering or EQ in their sidechain, causing them to react more (or less) to certain frequencies. This is known as frequency-conscious dynamics processing, and the most common form is the de-esser, a tool used to control high-frequency sibilance in vocals. However, the same concept is also found in general purpose frequency-conscious dynamics and dynamic EQs.

For a de-esser or frequency-conscious compressor, the filtered sidechain signal feeds (aka keys) the detector, so gain reduction is caused predominantly by the focus frequencies. In the case of a dynamic EQ, the sidechain keys the gain of a filter circuit, and so it's basically a specialised EQ and we therefore won't be covering it in this article as we want to focus on the core dynamics processors (note, however, that some de-essers do use this technique of dynamically controlling EQ filters).

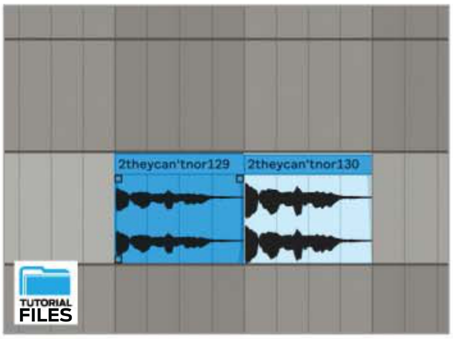
In a basic de-esser, 'ess' sounds will trigger broadband (full frequency) compression, which will cause the whole signal to be reduced in level during the sibilant parts. However, by using a filter circuit to split the signal, it is possible to process just the relevant frequency range, leaving the rest unscathed, and some de-essers offer this functionality – in essence, what you're seeing is a basic multiband dynamics processor (which we'll cover in detail on page 48).

"In essence, what you're seeing is a basic multiband dynamics processor"

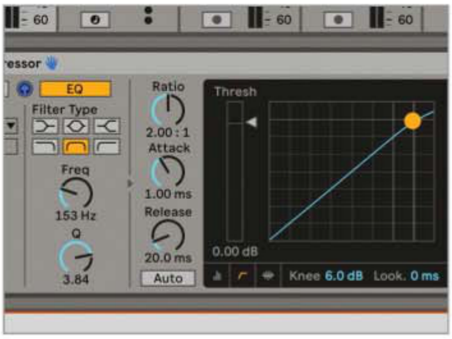
A more general-purpose frequency-conscious compressor simply takes the idea of the dynamic de-esser and provides a fully flexible frequency range and filter shape for the key signal, and often you'll find this concept incorporated in an existing compressor (Waves' C1 for example). At a slightly simpler level, you often get compressors with an adjustable high-pass option on the sidechain, and this can help reduce sensitivity to low-frequency content, such as when you want to compress a drum loop without the kick drum causing the compressor to over-react.

## > Step by step

## 2. Frequency-conscious dynamics processing

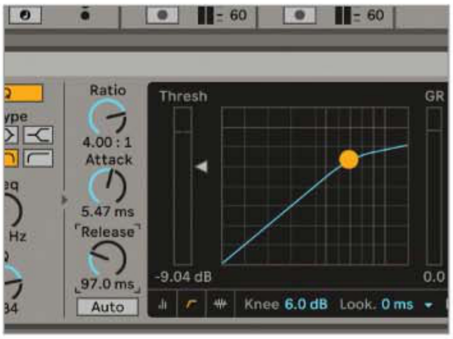



1 > Here we have a vocal in which the low frequencies jump out too much at various points – a problem that we can fix! Frequency-conscious compression is the tool of choice here. Load up a compressor with flexible sidechain options – we're using the excellent stock Compressor in Ableton Live, with the extra options panel opened via the disclosure triangle.

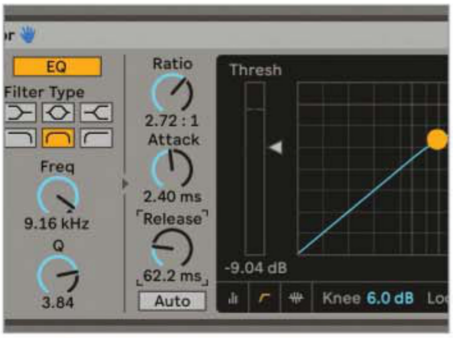



2 > We turn on the sidechain EQ and select the band-pass shape, allowing only a narrow range of frequencies through. The sidechain listen option (headphones icon) lets us hear the filtered sidechain signal in isolation. Sweeping the Freq knob, we find the boominess at around 150Hz. We narrow the Q to emphasise the problem area in the sidechain signal.

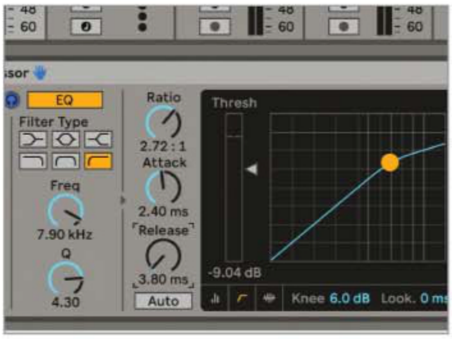
3 > We switch out of sidechain listen mode. The compressor now reacts more strongly to those lower-mid frequencies, but we still need to address the actual compression settings. We set the Ratio to 4:1 and lower the Threshold until we get some compression. Then we adjust the Attack and Release – a fast Attack makes for a good starting point.




4 > Dial in a medium Release setting. Remember, although the compressor is responding mainly to the lower frequencies, it is still acting on the full frequency range. If you get too aggressive with your compression envelope settings, the signal will pump too hard, overshadowing your efforts to tailor the response. For low frequency problems, you can expect to achieve a few dB of correction with this approach.




5 > We can use the same technique to create a de-esser. Load up a second compressor, again set to the band-pass filter shape, and this time use the sidechain listen to focus on the high frequencies from 9-11kHz. Once you've found the sibilance, adjust the Threshold, Attack and Release to shape the compression to taste.

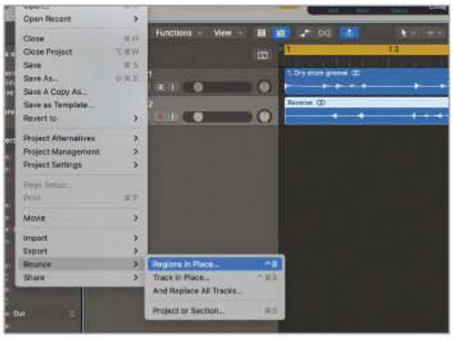



6 > Sometimes, a band-pass sidechain filter can be tricky to fine tune for de-essing. A simpler alternative is to use a high-pass Filter Type instead, which gives a broader response. Change the sidechain filter type and switch to sidechain listen mode to focus the cutoff point (start at around 8kHz) until you hear mostly sibilance. Then switch out of sidechain listen mode and adjust the Threshold, Attack and Release as before.

## > Step by step
### 3. Creative processing with reverse compression

1 > Let's now look at compression in a creative context – for an unorthodox flavour, try reverse compression. This is similar in execution to reverse reverb, and pretty easy to achieve within any DAW. The first step is to copy the audio file to be processed and reverse it, then put it on a 'temporary' track with a compressor inserted into it.

2 > Here we're processing a drum kit loop. Remember, since our audio is in reverse, the Attack setting will ultimately influence the decay stage, while the Release will become the attack stage. With the Release set fast, then, we can retain the transients; and by using reasonably heavy compression, we can add some colour to the release stage.



3 > With the Attack and Release set, simply adjust the Threshold to achieve the desired amount of gain reduction – we've gone for 10dB. Then bounce the processed audio to a new file, place it on the original track and reverse it so that it plays the right way round.

4 > While this process is pretty quick, as with reverse reverb, the quality of results is largely down to trial and error, and very dependent on the source audio, so it might take a few goes before you get something you're happy with. Here, as an alternative, we're using more laid-back Attack and Release settings.

## External sidechaining

**So far we've talked about the built-in sidechain that takes the compressor's input signal, splits it in two, then sends one half (possibly with additional filtering applied) to the detector and the other half to the gain adjustment section. It is, however, possible to use entirely separate signals for this by using what's known as an external sidechain, where a different signal is routed to key the detector and decide when the level is affected. For instance, place a compressor on your bass channel, and send the kick drum to its external sidechain input, and whenever the kick drum is played, compression will be applied to the bass sound. This has the effect of making the bass drop in volume to 'duck' out of the way of each kick drum hit.**

**As well as being useful from a mixing point of view, to help sounds sit neatly together, the effect can also be used overtly, for an obvious effect. Indeed, perhaps the most important sound in dance music over the past decade has been that of sidechained compression. To get the best results, you'll need to fine-tune the attack, release and threshold to get the desired pumping quality.**

**The same technique can be applied in other ways. On a reverb return, for example, set up a compressor sidechained from the kick drum for a pumping reverb you can add to all sorts of sounds. If the reverb is used on your kick/snare, try sidechaining it from the same sound you're sending to the reverb. This will carve out a little dip for the attack.**

## > Step by step
### 4. Phattening drums with snap compression

1 > Compressing drums is a balancing act: you're aiming to control the transients without crushing them. 'Snap' compression is a great technique for retaining the transients but still getting a fatter overall sound. It's particularly good for snare drums, rimshots and – sometimes – kick drums. Start by soloing a snare and slapping a compressor on it.

2 > We need to set the Attack time just slow enough that the transient can make it through the compression unscathed. Doing this by ear, we end up at around 50ms. We then select a 6:1 Ratio and lower the Threshold until we get moderate gain reduction of around 8dB.

3 > The idea is to compress the snare tail immediately after the transient, to make it feel punchier, and 'flatten' the tail, giving the impression of increased sustain. So, the final job is to set the Release very fast and readjust the Threshold to taste. The result is a much fatter snare drum with enhanced transient 'crack'.

# Parallel compression

**Parallel or 'New York' compression is simply the concept of splitting a signal at source into two parallel paths, compressing one while leaving the other unscathed. Once you blend the two back together, you should, in theory, be combining the benefits of compression while retaining the air and cleanliness of the source.**

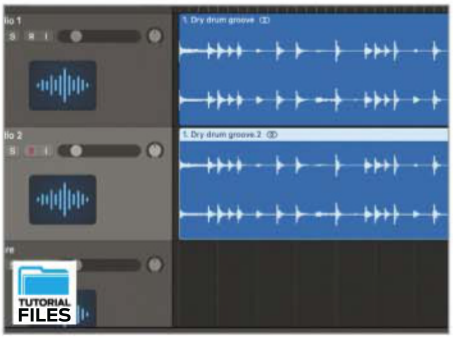
**However, in truth, the technique tends to be used to take advantage of the colour a compressor can add, so in many cases you'll be pushing the compressor harder and then blending the unprocessed signal back in with that. You'll typically see it used for processing transient heavy sounds such as kicks and snares, and also for fattening up lacklustre vocals. Get it right and the results will differ from simply using the compressor on its own. But it can be a fiddly technique, and it's very dependent on the level balance between the two signals.**

**There are two ways to approach it: one is the old-school method, originally developed on analogue desks where you would split (or 'mult' to use the US terminology) the source down two desk channels. On one channel you can then insert your desired compressor, setting it to compress hard, bringing up the tail of sounds and generally fattening them up. On the second channel you can then blend back in the raw source, regaining some of the lost transients or in the case of a vocal, articulations. So far so good. But the technique can then be further finessed by EQing each channel slightly differently. In a DAW environment, one can use linear phase EQs to minimise phase smear between the two channels.**

**The second way to approach parallel compression is to use a compressor with a mix blend (dry/wet) control. This is much quicker and can also give you an idea of whether the technique is worth a try. However, you clearly miss out on the additional EQing option, and achieving an accurate balance using a 'mix blend' is arguably much harder than blending two fader levels.**

## > Step by step

### 5. Retaining dynamics with parallel compression




1 > Parallel compression involves mixing heavily compressed and uncompressed versions of the same signal. Here we're taking the traditional approach, using two separate channel, but you can also do it using a compressor with a dry/wet mix control. First, copy the part to be compressed over to a second track (another option is to bus it to two channels in your mixer).

2 > Decide which will be the compressed track and which will be your dry track, then load your compressor of choice onto the former. We want to push the compression quite hard, so set a fast Attack, medium Release and high Ratio, then lower the Threshold until you get an obviously squashed, fat sound.

3 > Now blend in the unprocessed track. Starting with the fader down low, gradually pull it up until you start to hear the sounds combine. Make a mental note of this starting point, then work up from there to try different balances.

4 > Our plan is to combine the colour of the heavy compression with the openness of the unprocessed source. There are no hard and fast rules, but once you have a balance you're happy with, try muting and unmuting the unprocessed track to check that it's working as envisioned. Be prepared to adjust the settings on the compressed track, too.

5 > Parallel compression can be further enhanced with some careful EQ. To avoid phasing problems when mixing EQed and non-EQed signals (or indeed, two EQed signals), we recommend using a linear phase EQ. Here, we're using a low-mid EQ on the unprocessed channel to modify the body of the snare, typically found around 100-400Hz. Here, we've set up a bell-shaped cut of about -3dB.

6 > Our final move is to route both tracks to a group bus, in order to process them together before they reach the master output. This time we use a regular, non-linear phase EQ, sweetening the sound with gentle low and high shelves.

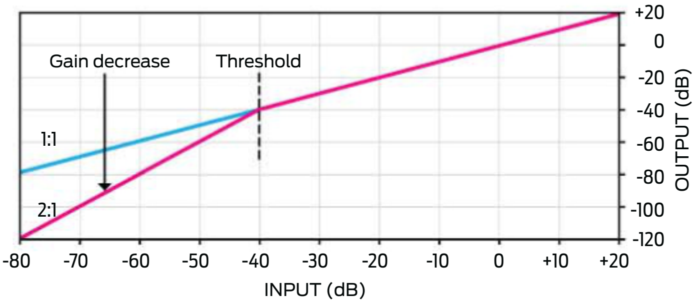
# Expansion

An expander increases dynamic range, and like a compressor can work in both downwards and upward ways. An upward expander increases gain above a threshold, ie, the opposite of a standard compressor. However, in practice, we typically encounter them as downwards expanders, and in this format, any signal falling below the threshold is reduced in level.

The amount of gain reduction is again based on the ratio, and this is typically very gentle – 2:1 or 3:1, maybe. You'll find other typical dynamics controls such as attack and release, but also some that are less common elsewhere such as **hold**, which sets a minimum period to sustain the gain reduction before the release can begin, and a **range** or **limit** (not to be confused with limiters and limiting) control, which affects the overall maximum gain attenuation applied – useful when trying to make the expander sound as natural as possible.

If we plot a downwards expander on a transfer graph, we can see the graph become steeper at the threshold, and the slope of the steeper plot will be dependent on the ratio. At a ratio of 2:1, if the signal falls 3dB below the threshold, the output signal will be reduced by 6dB. In practice, the levels will be changing over time along with gain reduction.

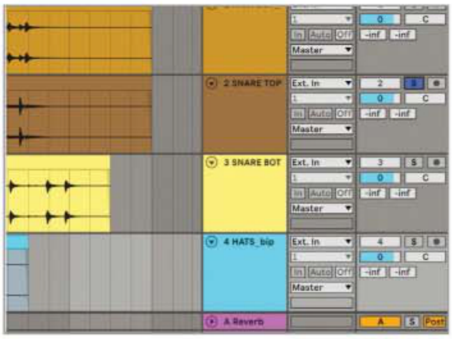
So, what can we use them for? Typically, the curtailment of single-ended noise like tape hiss, mic bleed or background noise. We say curtailment, as they won't remove these sounds completely; ideally, they'll do it in a more subtle way. Next, we'll show you how to fine-tune an expander's parameters to get the desired result.




**A downwards expander will reduce the level of a signal below the threshold**

## > Step by step

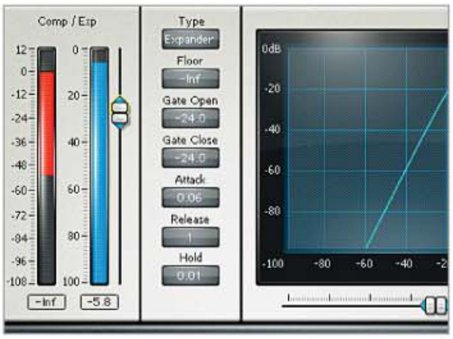
## 6. Reducing background noise with expansion

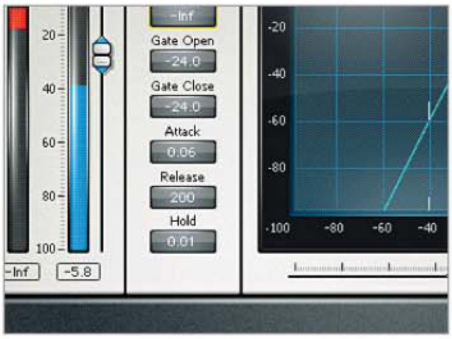


**1** > Expanders are great for suppressing background noise or ambience in situations where a gate would sound too abrupt – drums or multi-miked location recordings, for example. Here we're going to use them to curtail – but not entirely remove – mic bleed from a snare drum's underside mic. Load the drum tracks in Tutorial Files into your DAW.

**2** > Solo each track to hear how the bleed between drum mics potentially makes controlling the sound quite tricky – when we start to introduce EQ and compression, any bleed will likely get magnified, which could seriously limit our options as well as clogging up the mix. If we gate them, though, the sound will be too clinical, so an expander is our best solution.

**3** > Let's expand the bottom snare mic, which is picking up bleed from the kick as well as the snare wires rattling in sympathy with the other drums. Load an expander and set a fast Attack and Release. Our expander here has a fixed Ratio of 2:1 and a Floor, or gain reduction limit, which we'll come back to shortly. Set the Floor limit to maximum for now – on our plugin (Waves C1), that's -infinity dB.





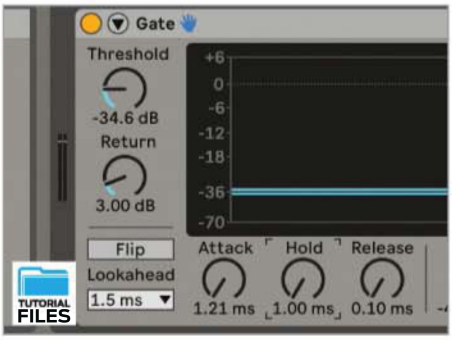
**4** > Gradually raise the Threshold from its lowest setting to 0. You'll notice that the gain reduction happens in the gaps between the louder sounds, which is exactly the effect we're trying to achieve. Keep moving up until it sounds choppy and gated, removing most of the sound between the hits.

**5** > We started with a fast Release setting, but now let's ease it back to make the sound less choppy and gate-like, and allow the sound to breathe a bit. We've gone for around 200ms, but the actual setting will depend on the source signal and the style of music, so let your ears be the judge.

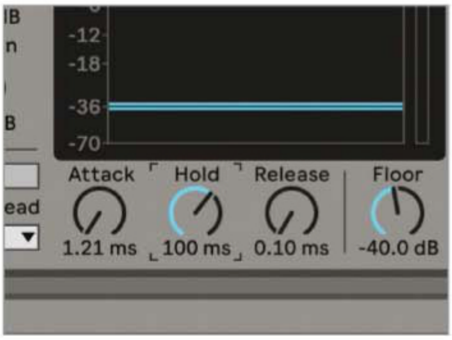
**6** > Finally, back to that Floor limit parameter. The current setting lets the expander reduce the signal right down to -infinity dB – ie, silence. We can adjust this to set the maximum amount of gain reduction applied, so that the expander quietens the gaps between hits rather than totally silencing them. We go for a 20dB limit. The last thing to do is tweak the Threshold once again to finesse the sound, then bypass to compare.

# > Step by step

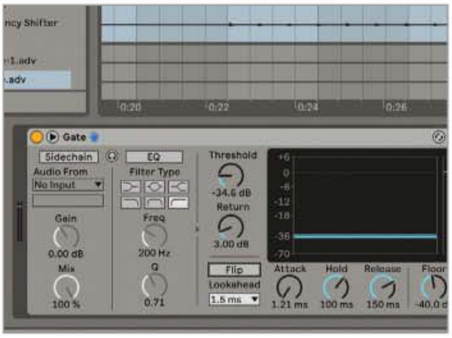
## 7. Basic noise gate setup




**1** > Gates differ from expanders in that they work by switching between two states – open and closed – rather than responding continuously to the signal level. Here, we're gating a snare drum to remove mic bleed and ghost notes. First, set a fast Attack, then adjust the Threshold upwards from minimum until the gate only opens for the main hits.




**2** > Now adjust the Hold time, which sets how long the gate stays open once the level drops back below the Threshold. It's great for drums, enabling accurate timing and preventing rapid opening/closing caused by levels hovering around the Threshold. Here, around 100ms does the trick. Be prepared to adjust the Threshold as you tweak the Hold time.



**3** > Now adjust the Release setting to taste. Here, around 150ms sounds natural, but 30ms delivers a good, tight sound. You may also have a Hysteresis setting, which is an additional closing threshold. Adjusting this below the opening Threshold helps if the gate is 'chattering' (opening and closing too much), but as discussed, you can also resolve this with the Hold setting.

**4** > Finally, Reduction (or Range or Floor as shown) sets the attenuation when the gate is closed. Completely silencing the signal can sound unnatural, so reducing this is like blending in some of the 'dry' signal. For more accurate results, use a gate with sidechain filtering, which can be configured in much the same way as frequency-conscious compression.

## Noise gates

**Like most of our dynamics processors, noise gates started out as functional devices. As noted, they differ from expanders, as when the signal is below the threshold, the output level is reduced by a fixed amount – and possibly to silence – rather than by a ratio. However, be aware that a gate can be a blunt tool, as its operation can sound very obvious, particularly if it opens in the wrong place or doesn't open when required.**

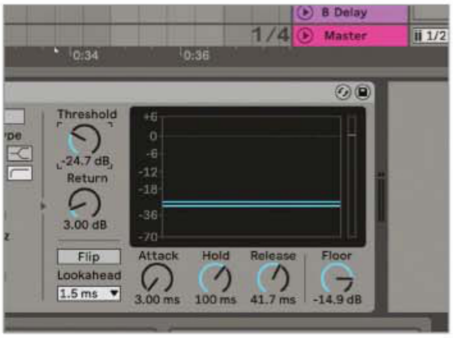
**Functional uses include quick tidying up of recorded tracks to remove unwanted performer noises in between playing, removal of tape or ambient noise in between the desired audio, and automatic muting of mic channels when recording or in a live setup. Some gates include a reverse 'ducking' mode, so they close rather than open during the presence of a signal.**

**Gates are also great for creative applications. With a very fast gate, you can use the attack setting to add a click to the front of a sound and use the release to shorten its decay. They're also great for gated reverb, using the hold and release to tailor the reverb tail so it drops suddenly after an initial decay phase. Finally, using their sidechain, gates can be used to impart the rhythm of one sound on another. This can be great for locking two live instruments together or for applying specific patterns to a sustained sound in a 'trance gate' fashion.**

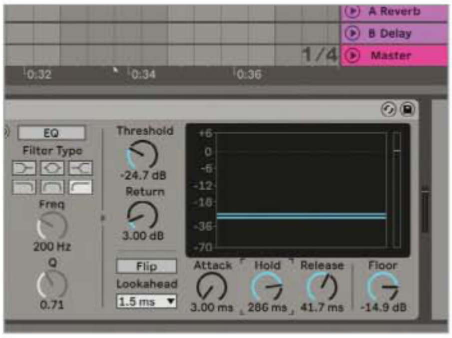
# > Step by step

## 8. The classic gated reverb effect

**1** > Gated reverb is a classic effect that's really easy to set up. Start by loading a reverb onto an auxiliary send channel. After we've applied the gate, we'll only be hearing the early part of the reverb tail, so use a reverb that has a big sound in its early stages and – unless you want a slap-back effect – zero the Predelay.



**2** > Load a gate onto the reverb return channel, placed right after the reverb. Dial in fast Attack and Release settings, and set the Hold to around 100ms. Adjust the Threshold so that the gate opens as required, then return to the Hold and Release settings and tweak to get a sound you like.



**3** > Like delay, gated reverb really needs to be timed accurately. You can either do this by ear, or work the timing out mathematically. With our track at 105bpm, a quarter note is 286ms in length, so we can set our Hold time to around 286ms to start with, or use 286ms as a target for the Hold and Release times in tandem.

# Transient processors

Transient shaping was made popular by SPL with their classic Transient Designer hardware unit, which uses something called 'differential envelope technology' to shape the transients of sounds no matter whether they're quiet or loud ones. In fact, this is the only processor we're covering that doesn't react to level directly – there's no 'threshold' – responding instead to *changes* in level.

SPL's processor is now available in plugin form both direct from SPL and also via the UAD platform. It's no longer the only such plugin on the block, though, as you'll find transient shapers from a number of plugin manufacturers. They tend to fall into two camps: the simple two-knob attack/sustain types, and the graphic-based 'envelope shapers' which tend to include a few more parameters. Either way, what we're looking at is a processor that tracks and reshapes the envelope of the signal it encounters.

It's tempting to just head for the attack control to adjust the front end of a sound, but you also have control over the sustain, and this can be just as important when finessing the sound. Reducing the sustain for a more 'clipped' (as in abrupt, not distorted) sound can be a great alternative to gating when tightening up beats. However, increasing the sustain is often more rewarding, and on drums, for example, you can create the impression of quite heavy pumping compression simply by extending out the sustain control, without the transient-squashing that can be associated with compressors. In general, transient shapers work best on shorter sounds, as smooth, sustained sounds can begin to sound a bit lumpy under heavy processing. Finally, watch your output levels, as a transient shaper can generate considerable peak levels.

In the walkthrough below, we'll try two things: first, we'll enhance the attack of a snare drum, and then we'll soften off the attack of a picked electric guitar. In both cases, once the attack is set up, we'll find that the sustain also plays a vital part in fine-tuning the outcome.

> "Reducing the sustain for a more 'clipped' sound can be a great alternative to gating"

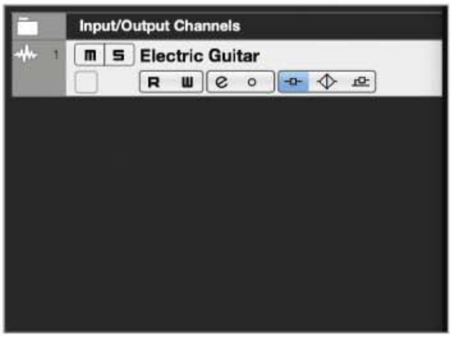
## > Step by step

### 9. Exploring transient shaping processors

1 > Transient shaping plugins are related to compressors and expanders but work somewhat differently. Let's start with something simple: adding sharpness to the attack of a snare drum. Our plugin (SPL Transient Designer) allows +/-15dB of cut/boost, but it only takes a 3-4dB Attack boost to get a crisper sound.

2 > What happens if we push it further? Over about 10dB, the snare really starts to pop. Not only that, but the plugin's 'clip' lamp (labelled OVR on this plugin) comes on, indicating that the signal has exceeded 0dB, and the sound quality starts to suffer. We trim back the Output Gain level to compensate.

3 > Next, let's investigate what the Sustain control can do for our snare. With our big Attack boost still dialled in, pushing up the Sustain level actually brings some life back into the sound. However, pulling back the Attack slightly sounds even better. The overall effect is similar to 'snap' compression, but easier to achieve and without as much level adjustment.




4 > Cubase's EnvelopeShaper transient processor features just three main controls – Attack, Length and Release – although you can also drag the envelope points in the display. Let's use it to soften the attack of a clean-picked electric guitar. We start with the default preset.

5 > Our first step is to reduce the Attack parameter. A little goes a long way here, and it's quite easy to end up with what sounds like a fade-in on each note. We've opted for a very small adjustment, but bypassing and A/B comparing reveals that the result is exactly what we want.

6 > We can tweak this further by dragging out the Length and reducing the Release time slightly. Once again, we've reshaped our sound in a very direct way, and although we could have used compression to soften the attack and influence the release of our guitar, that's a much blunter tool for this sort of process.

# Sidechain compression

> What started out as a rare mix technique designed to add glue between specific sounds has become, without question, the most popular audible compression technique ever, and much like extreme pitch correction, is often overused. That said, things have clearly moved on from the early days, and applied with care, the process can add life and energy to your tracks without killing the dynamics.

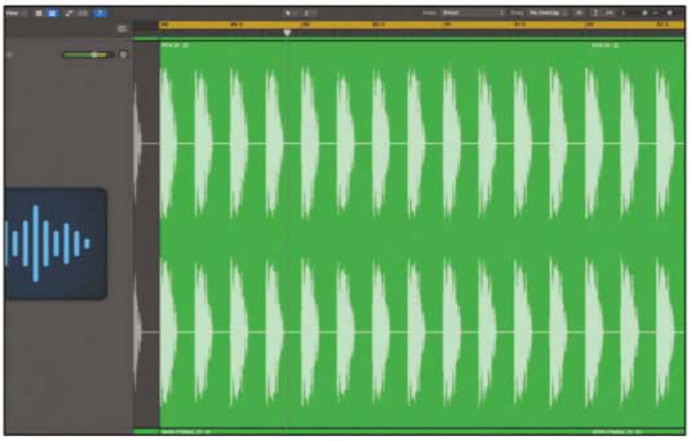
But what exactly do we mean by the term sidechain compression? In fact, all compression actually uses a sidechain, it's just that it normally comes from a split of the compressor input signal itself, and this is why the compressor reacts to the input. However, if we can use an external signal of our choice to instigate the compression, then it opens up a whole world of creative opportunities as the compressor will apply the dynamics of the external signal to its own input.

Of course DAW flexibility allows us to be quite specific with how we set this up and allows us to not only process specific tracks or subgroups, but also create bespoke sidechain blends. Throw in some automation as well and we have a highly flexible way to shape dynamics.

Here we'll show you how to set up a typical pumping sidechain compression effect, suggesting routings and basic settings. Then we'll look at how to finesse it and make it do what you want. Finally, although the focus of this tutorial is compression, if you're simply after a rhythmic pumping effect, this can be created in other ways, and there are even some bespoke plugins (CableGuys Kickstart 2 for example) that do this. With this in mind, we'll finish up by looking at one specific and quite simple technique that can create sidechain compression pumping effects.

## > Step by step

## 10. Sidechain compression



**1** > To get started with sidechain compression, you need a compressor plugin which includes an external sidechain input. Insert this plugin across whatever you want to process. This could be individual tracks, submixes or the whole mix. Here we're using it on just the pad sound from our mix.

**2** > Next up, you need a sidechain or 'key' signal. You can use anything for this, and even create a bespoke track just for the key signal. For a typical rhythmic pumping effect you'll need something with a clear transient that is also in time with the track. For club music we usually use the kick.

**3** > Next up, you need to check how your particular DAW routes signals to the compressor sidechain. The simplest option, something which is available on many DAWs, is to select a specific track as the source. Here we've selected our kick track from the compressor side chain menu.

**4** > It's worth saying that as an alternative you can create a separate bus for the sidechain. Send whichever components you like into this bus and select the bus as the sidechain signal on the compressor. This is quite a flexible option and a great technique if you want to control the compressor from multiple sources.

## > Step by step

### 10. Sidechain compression *(continued)*

**5** > Back with our simple kick sidechain, we are now going to set the compressor to shape the pad sound. With a default preset loaded, set the ratio to about 8:1 and lower the threshold until you start to get some healthy gain reduction – we're seeing about 15 to 20dB. This should create audible rhythmic pumping.

**6** > Now finesse the effect. If you have the option, set the knee shape to hard. Then look at the attack and release times. Set the attack to moderately fast (ours is 15ms) then focus on the release. With the fastest release times you get the most pumping, so use this to adjust how dramatic the effect is.

**7** > Once you have an effect you like, you may want to adjust its overall depth. Rather than mess with your carefully crafted attack and release times, try adjusting the ratio. Alternatively, many compressors also have an output mix, offering a second way to achieve your desired effect blend.

**8** > As mentioned, you can get a pumping effect that sounds like sidechain compression using other techniques, including bespoke plugins. If you have a flexible stereo level modulation effect that can be set to tempo sync this can also work. Here we've loaded up the Tremolo effect in Logic Pro X.

**9** > By default this plugin uses alternating left and right level changes to create the tremolo effect, but simply by setting the Phase offset to zero, the plugin now applies the level change evenly on both sides. With the Rate set to a quarter note, we have something approaching a pumping effect.

**10** > If we now set the curve Offset to 180 degrees and Smoothing to 0%, the initial level is zero. Now by adjusting the overall Depth (we've set ours to 35%) and introducing a small amount of Smoothing (we've set ours to 10%), you have a time synced pumping effect, which emulates sidechain compression with a fixed quarter note trigger.

# Serial compression

Like many dynamics processes, compression can be a tricky one to get right, particularly where levels are quite variable. Too little compression can leave you wondering why you've bothered, too much and you're subsequently saddled with unpleasant artefacts or unwanted pumping.

Couple this with the desire to make use of a compressor's inherent flavour and you might begin to wonder how you'll ever get where you want to be. One very effective technique is to stop trying to achieve multiple outcomes from one processor and instead use two or sometimes more compressors in series.

Serial compression allows us to play to the strengths of each processor. We could, for example, try combining the glue effect of an opto compressor with the transient modification and distortion of a FET. Or maybe experiment with the harmonic distortion of a valve design and the predictability of a VCA. Or we could simply use one compressor to smooth out levels in combination with another that can grab peaks. In most situations we are also spreading the overall gain reduction, and this is ideal in more critical scenarios such as mastering, where we may not want the audio to actually sound processed at all.

Of course using multiple compressors then requires us to decide which order to put them in. Usually the required task will help us decide. That said, creative techniques like this are always open to interpretation, and it's often worth trying different orders. Finally, serial compression isn't a technique that's suited to every application. What's more, although it can be a good way to handle tricky levels, we wouldn't advise its use when recording, as setting multiple thresholds can be fiddly. Ultimately, serial compression can be a highly fruitful technique at the mixing stage when you have plenty of time to properly finesse settings.

## > Step by step

### 11. Serial compression

**1** > Serial compression offers a great way to combine levelling with some transient control. One of our favourite target sounds for this is bass guitar. Here we have a bass part where the levels are inconsistent but where we also want to use an aggressive compressor to add bite.

**2** > Let's tackle the bite first. For an aggressive effect load up a fast design such as a FET compressor. We've chosen an 1176 emulation, setting a fast attack and fast release, with a 4:1 ratio. Adjust the threshold to taste – we're achieving up to 7dB of gain reduction.

**3** > Used in this way, the 1176 adds some flavour and edge to the attack, which is precisely what we want. Nevertheless, the bigger picture is that the bass level is still inconsistent. Rather than adjust the 1176 to attempt to achieve this as well, just add another compressor in series after it.

**4** > For general levelling, we want a transparent compressor. Try a classic VCA design or a regular DAW compressor (we're using the stock Logic Pro X design). Set the Ratio low (2:1 for us) and the Attack reasonably slow (we've set ours to about 70ms). Ideally you'll have an auto release option, as this delivers program dependent release.

# > Step by step

## 11. Serial compression *(continued)*

5 > Adjust the Threshold to achieve a few dB of gain reduction (our maximum gain reduction is about 4dB). The reasonably slow attack means this compressor is not grabbing the transients and, combined with the auto release, has a glue and levelling effect. Try bypassing each compressor and then both compressors to assess their impact.

6 > We can also use serial compression on full mixes and complex submixes to combine enhancement and glue. For harmonic enhancement, try valve or transformer-based emulations, such as the Fairchild 670, as these add harmonic distortions even when there is little or no compression.

7 > Load up your compressor across a submix or the master output. We've loaded up the Slate FG-MU valve bus compressor across our mix bus. Set the Threshold to taste. Here we've set the side-chain High pass filter to about 100Hz and adjusted the Threshold for about 1dB of gain reduction. Attack and Release are set to medium.

8 > Now use a second compressor to tighten up the overall mix. We've loaded ours following the valve compressor, though here it's with very moderate compression, the order may not influence things that much. Load your favoured mix bus compressor plugin. We're using the ever reliable SSL Bus Compressor 2.

9 > For mix glue, we're using the 2:1 ratio with a medium to slowish attack (10ms) and Auto Release. With the side-chain high pass filter switched off, the low frequencies are driving the compressor and we've set the Threshold to achieve up to about 3 or 4dB of gain reduction. Overall the mix sounds tighter.

10 > Finally, try switching out both plugins to A/B with the original. This is clearly a more subtle treatment than our first example with the bass. Nevertheless, each compressor is doing its own thing and although the overall metered gain reduction is quite modest, the mix sounds tighter in the low end with enhanced high mid frequencies.

# Mid/side compression

We would typically process stereo submixes and master mixes using regular stereo processors. And in the case of a compressor, although the left and right channels could be processed completely independently, our compressor usually has a stereo linking mode that uses a combined left and right channel sidechain so that the stereo image remains stable.

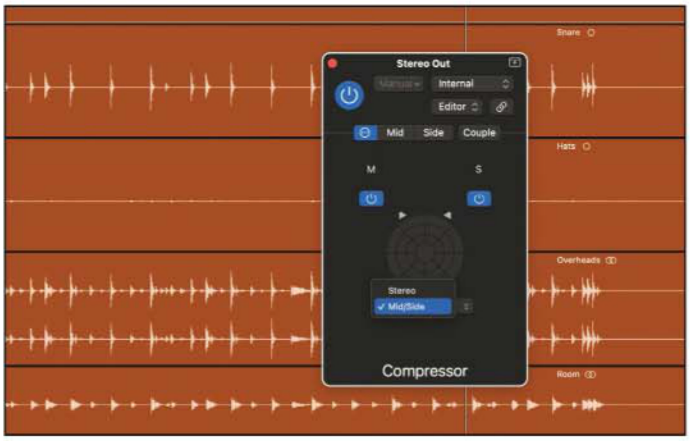
However, you'll often hear mixing and mastering engineers talk about processing stereo signals using the mid/side technique. This splits the signal into its sum and difference components allowing you to process them independently and then returns them to stereo at the output. Much like recording in MS, this process only requires two audio channels, which means that it's reasonably straightforward to design a stereo compressor that can also process in mid/side (the classic Fairchild 670 for one example).

In software form you get various implementations including controls for both mid and side components. Or sometimes the option to process just one, leaving the other aspect unprocessed (this is the case in TDR Labs' excellent Katelnikov free plugin). Either way, plugins have stereo inputs and outputs so are very straightforward to use.

But why would we choose to compress in mid/side mode? This really boils down to the way contemporary mixes are structured. Often bass-heavy and key punchy elements are in the centre, while the stereo comes from aspects in reverbs, stereo sounds and elements that are panned. Nevertheless, mid/side allows us to reshape the mid components, and apply more suitable compression or even none at all to the side components, and this leads to a different outcome to straight up stereo compression, where the compression is applied to the whole stereo signal. Here we'll run through how to set up and use this technique on a stereo drum mix.

## > Step by step

### 12. Mid/side compression




**1** > Stereo beats are a great starting point for trying out MS compression, and an ideal candidate is a drum kit as by default it typically includes centred aspects such as kick and snare and stereo components in the overheads, room mics and any reverbs that have been added in the mix.

**2** > Here we're starting with a multitracked drum kit that combines mono and stereo elements as discussed. That said, we are still processing the overall stereo blend and in this case at the output. We've loaded up a mid/side capable compressor, and on its signal flow page set it to mid/side mode.

**3** > Initially we're going to focus on just the mid component. Back in the main compressor window we've used the tab to select the 'mid' parameters and have then selected the opto compressor emulation. The reason we've chosen this is because we can achieve an audible compression that demonstrates the technique.

**4** > Whenever you're processing mid and side independently, changes in the balance between these two components influences the width of the stereo image. Compressor automatic gain and make up gain can cause an extra layer of confusion, and we suggest switching this off and using the manual make up gain to manage the balance between mid and side.

## > Step by step

### 12. Mid/side compression *(continued)*

**5** > Now let's set the main compressor parameters. We've chosen aggressive settings with a quite fast attack but slow enough not to crush the transients. With automatic release and a ratio of 5:1 we've set the threshold so that gain reduction is hitting 10dB on the peaks.

**6** > This amount of gain reduction has had a big impact on our stereo image, and with manual gain make up, it's time to rebalance the output level. You'll have to do this by ear, as although the meter is telling you -10dB of gain reduction, that's only the peaks. Here we've added about 5dB on the make up control.

**7** > Try A/Bing the result to see the difference. The key things for us are the much more snappy, fatter-sounding snare drum and the more solid central image. Also the wide parts of the stereo image remain quite natural. Finally, there's fundamentally more energy in the blend but it's not pumping.

**8** > Now let's try processing just the side component. Here we've switched over to our routing matrix and deactivated the mid channel. Then on the main compressor page we've selected the Side tab and chosen the super fast Studio FET emulation, once again deactivating the automatic gain make up.

**9** > Our aim is to use the compressor to bring up the stereo aspects of the blend and add some shape to the transients. To that end we've set the attack reasonably fast and the release at its fastest setting. With the ratio at 8:1 we've adjusted the threshold to achieve up to 8dB of gain reduction on the peaks.

**10** > As before we've adjusted the make up gain to balance the mid and side (4.0dB for us). Try A/Bing the result. The side component is now more present and has some pump to it. Meanwhile the unprocessed mid component delivers the clean transients. Once again there's more energy to the sound. **cm**

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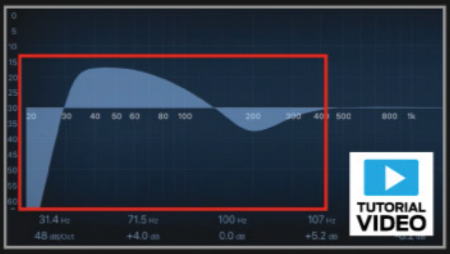
## Become a better producer now with pro advice, expert videos and audio examples from our gurus

**Synth Masterclass**
with *Dave Gale*

### 38 Bandpass filter bass

Dave Gale explores more low end filtered action with your very own free ZebraCM synth



**Mixing**
with *Jon Musgrave*

### 42 Creating spin delays

Mix Master Jon Musgrave continues his new Masterclass series with advice on spinning delays

Download the accompanying video and the MIDI/audio files at **bit.ly/cm317downloads**

#23

## Dave Gale

**Dave Gale is an Emmy award-winning media composer, producer and orchestrator, with an enormous passion for synthesisers, in all their forms. His varied composing style embraces everything from full orchestral and hybrid scoring, to fully electronic scores, employing synths wherever possible. He also happens to own some of the finest synths in existence but we're not jealous, OK?**

# Bandpass filter bass

The concept of a bass sound, with little low-end harmonic content, might feel counterintuitive. We aim high for this month's bandpass filtered bass patch

> **In this edition of my Synth Masterclass, we begin by becoming clairvoyant! I know what you are thinking. Why for the love of all things synthesis, would you want to create a bass patch that actively seeks to reduce its harmonic content?**

As is so often the case, with a popular synth patch, it's all about the overall effect. What we might lose in lower-end content, we'll more than make up for in coolness and character. To begin with, we're going to create a patch which invites a degree of automation.

To assist in this pursuit, we'll be using a bandpass filter, located within our Zebra CM plugin, which invites a degree of cutoff frequency sweeping, yielding low-end content for creating that punchy bass sound.

It's also possible to swap out the filter type being employed within this patch for a high pass filter. This is perfect for builds leading up to a drop where you can hint at your bassline, but with a slightly different timbral colour, entirely because of its lacking low-end content.

How you choose to employ the filter will be dictated by your production direction, but the one constant that will remain the same is the initial waveform construct, which could be considered relatively traditional through the use of sub-oscillator, alongside a generous main oscillator.

## > Step by step

### 1. Bandpass filter bass

1 > We'll begin by initialising a patch on the ZebraCM. Open your DAW and load up the plugin. Once the plugin window is open, move to the central display at the top of the window, click to reveal the drop-down menu, and select 'init' from the bottom. This will initialise the patch.

2 > Upon initialisation, the master volume will increase to its maximum. We always advise reducing this to a value of 50, purely to safeguard overloading your equipment. Just as a reminder, every time you tweak a pot or setting on the plugin, you will see an accurate value/numeric in the upper display.

3 > Moving to the Osc1 section, leave the waveform set to its Sawtooth default, along with the Volume control, which is set to 100. To thicken this waveform, click the number 2 in the aliased waveform section. This will immediately create a clone of the wave, placing the two waves left and right in the stereo image.

4 > Osc2 is going to be acting as a sub oscillator. Change the waveform by clicking and dragging on the icon, so that it reads a value of 2, in the upper display. This should be recognisable as a square wave, then change the volume of Osc2 to a value of 32.

5 > As Osc2 is going to act as our sub, we need to detune the oscillator down by an octave. Adjust the tuning pot, so that it reads -12 in the upper display. This is a measurement of semitones, hence 12 semitones to one octave.

6 > Now it's time to move to the filter section. As previously mentioned, you could also use a high-pass filter to achieve a similar but slightly different effect. However, we're going to explore cutoff automation, which will be more effective if we use the BP QBand filter. You can explore other filters, to suit your production style.

Download the accompanying video and the MIDI/audio files at
**bit.ly/cm317downloads**

## > Step by step

## 1. Bandpass filter bass *(continued)*

**7** > Set the value of the Cutoff pot to 0. The position of the Cutoff pot will have an enormous effect on the overall sound of our patch, so you may want to experiment with this to suit your purpose. In our current setting, the sound will appear to be very dull, and almost non-existent.

**8** > To compensate for the dull sound, created via the excessive filtering in the previous step, we will use Env2 to modulate the filter cutoff. Using the User-defined pot within the filter section, it should already be set to Env2 by default. Change the pot value to 105.

**9** > Now it's time to head to the envelope section. Env1 will be controlling the volume/amplitude of our patch; set the Attack pot to a value of 0, Decay pot to 35, Sustain pot also to 0, and finally the Release pot to 35. The quick attack, coupled with sharp decay and zero sustain, will provide us with a punchy sound.

**10** > Env2 is heading toward the filter section but requires some similar alterations; set the Attack pot to a value of 0, Decay pot to 37, Sustain pot also to 0, and finally the Release pot to 36. It's relatively similar to the settings of Env1, continuing the punchy theme.

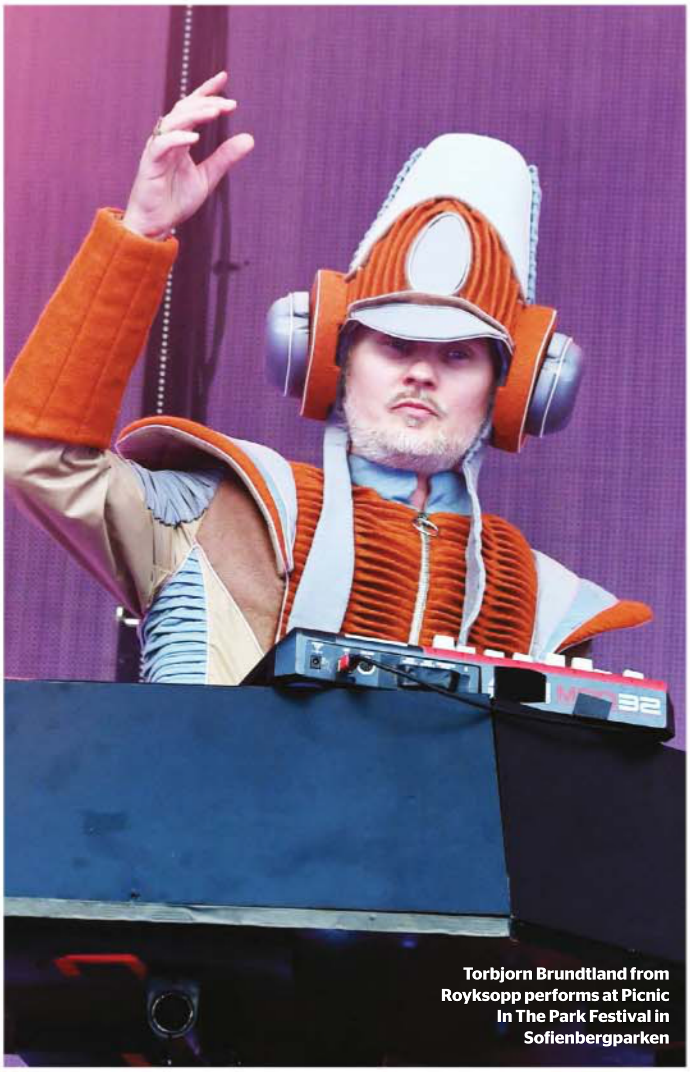
**11** > To counteract some of the filtering effect established by the use of our bandpass filter, you will undoubtedly need to bolster the bottom end of your sound using some EQ. This may be different if you choose to endorse a high-pass filter, but for our BPF example, you can see the bottom-end curve very clearly in the EQ graphic.

**12** > Finally, as this is a bass sound, you'll almost certainly want to use some compression to keep levels under control. We always like FET or 1176 style compressors on our bass sounds, so have a look through your plugins and try something suitable.

PRO TIP

# AUTOMATED OR STATIC

We're big fans of automation at *Computer Music*. Even the most subtle of sound alteration, over time, can elicit interest and magnificent builds or subtle fade outs. Above all, automation can take your music and production to the next level, rather than just being content with letting loops roll by. It turns out we're not the only people to think this! Norwegian electronic duo Røyksopp use plenty of automation, coupled with good old humanistic manipulation, throughout much of their output. Their track *Feel It* employs a filter across the entire mix for the first few bars. We can create a very similar effect, but by only effecting our bass sound, through the automating of the cutoff control on our patch. This is particularly effective with our chosen Bandpass QFilter, as the point of cutoff is naturally accentuated by the shape of the filter. However, it's also possible to obtain another classic effect by simply switching the filter to a high-pass variety and just playing a bassline. It's another common production trick, applied by many electronic artists. It can often feel like a more vintage sound, which may also explain why it is popular with bands such as Zero 7.



**Torbjorn Brundtland from Royksopp performs at Picnic In The Park Festival in Sofienbergparken**

Rune Hellestad-Corbis/Corbis via Getty Images

**Zero 7 at Wireless Fest, Hyde Park**

Photo: Tabatha Fireman/Redferns via Getty

## RECOMMENDED LISTENING

**ROYKSOPP**
***FEEL IT***
While this track uses a filter across the whole mix, during the first four bars, our bass effect is similar, allowing total control at the track level
**bit.ly/cmu_royksopp**

**ZERO 7**
***SEEING THINGS***
This track from Zero 7 makes extensive use of a static BPF/HPF bass sound. We can replicate this easily by altering the cutoff amount and filter type
**bit.ly/cmu_zero7**

Download the accompanying video and the MIDI/audio files at **bit.ly/cm317downloads**

#02

## Jon Musgrave

**Jon is a London-based producer, mixer, composer and club remixer with a diverse CV that spans dance, pop, rock and music for media. He's also a long term contributor to *Computer Music*. Whether working alone or collaborating he usually handles final mixdowns, which is why we've got him to share some pearls of mixing wisdom.**

# Creating spin delays

Are you confused by how to approach delays in a mix? This month we focus on a tried and tested technique

**> Delay is a vital aspect of most mixes and can be used in numerous ways. Rather than tackle all of these in one feature, I'll look at specific techniques, how to achieve them and where to use them. This month we're focusing on spins. Making full use of the stereo image can be an important aspect of a successful mix, and often we need to find a way to add width to mono sounds.**

Adding spin delays is a key technique ideal for lead and featured elements and involves picking out specific snippets to add delay to. This could be certain words in a vocal or notes in a lead part, and works particularly well used at the end of phrases. It's a great device to help smooth transitions, fill gaps and can be used as a featured effect or in more subtle ways. There are a few different ways to achieve spins, including using snippets of duplicated audio and creating them manually, but the most efficient and flexible is to use an automated auxiliary send.

We can then supplement this with additional automation or even add further processing of the send and return if required. Finally, listen to most mixes and you'll hear spins working in time with the track, and many delay plugins load up already set to tempo sync.

So, in terms of timing, all you have to do is choose the division you want for your spin. That said, spins can work in free time as well, and we'll look at both options in the walkthrough.

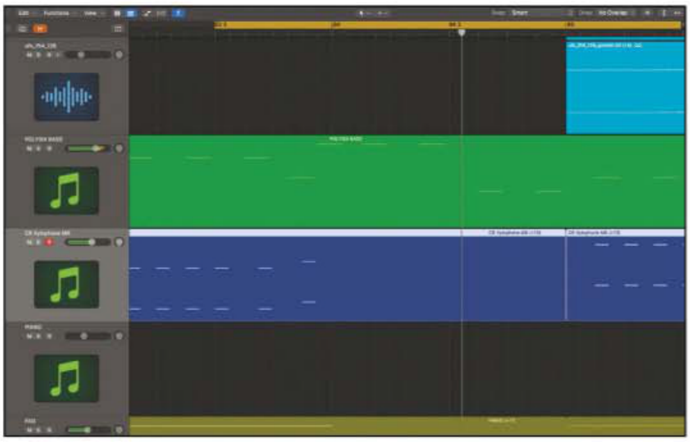
## > Step by step

### 1. Creating spin delays

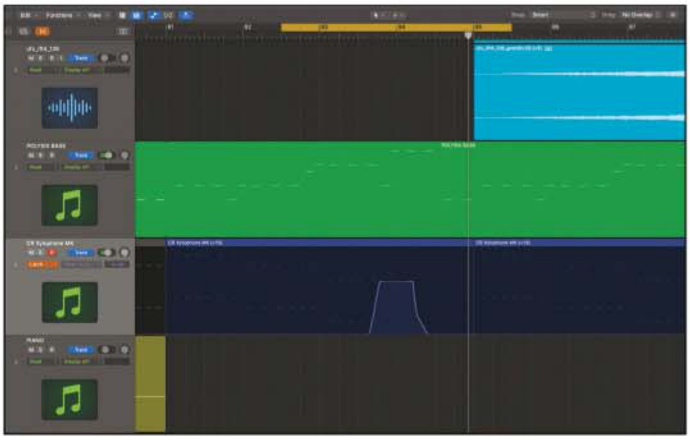
1 > There are various ways one can set up delay spins, including creating a separate track just for the parts you want to send, or even create them manually using an audio track. Here, we're going to stick to a tried and tested method using delay plugins on an auxiliary. To get started, load up a delay on an auxiliary.

2 > On the plugin, select a tempo-synced delay (we're starting with quarter notes). Next, to test out the delay head over to the track or tracks you want to process, assign a send to the delay's auxiliary bus, and manually send a quick snippet of audio.

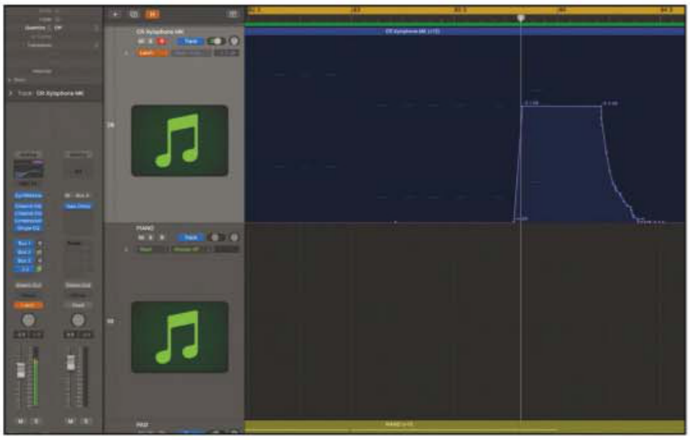
3 > This should give you a good idea of what sort of send level you're going to need, and also how much feedback. Set a low feedback setting if you just want a subtle echo. For more featured spins, as we're going for here, you'll need a higher setting (ours is on about 65%).



4 > With the delay set up, the next task is to pinpoint the sections to process. As mentioned, we typically add spins at the end of phrases to emphasise words or notes. For our example xylophone part, we've zoned in on a specific point and this is a single note at the end of the phrase.



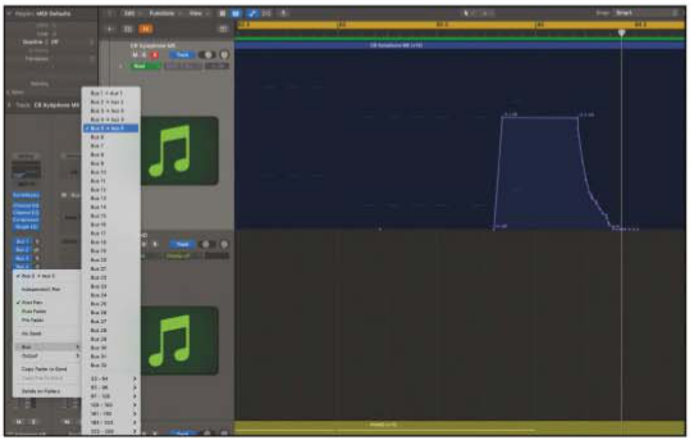
5 > Try the spins out manually by sending some level in real time. This gives a quick idea if the idea will work. If you're confident with your DAW automation you could also write these moves in at the same time. Alternatively, you could draw them in manually once you're happy with the sections.



6 > Finally, finesse the send automation. Often this only involves working on the send level. However, with vocal parts it can be more tricky, particularly if you're using a small snippet of a word rather than the whole word. Either way, try shaping the send level automation to achieve the desired outcome.

## > Step by step

## 1. Creating spin delays *(continued)*



**7** > As you work through potential spins, it's sometimes clear that different snippets need different delay timings, and it can work really well having targeted delay timings for specific points in the track. The easiest way to achieve this is to set up additional delays on fresh auxiliaries.

**8** > In addition to quarter notes, synced delays that work well include half note or even three 16ths (a dotted eighth note), and this latter option is great when the track has a swing feel or you want to enhance that feel. Work your way through the track trying out different timings on different sections and different parts.

**9** > Once again, when you're happy, commit the send levels to automation in whichever way works best for you, and finesse the automation as before. Here for our vocal we've used a mixture of quarter note and half note spins, adding them alternately at the ends of phrases.

**10** > So far we've focused on tempo-synced delays, and most of the delay spins we use are tempo-synced. However, it is possible to use free time delays as well. Unsurprisingly, these don't work particularly well for longer delays. However, for shorter delays they provide a great way to create interest or fill gaps.

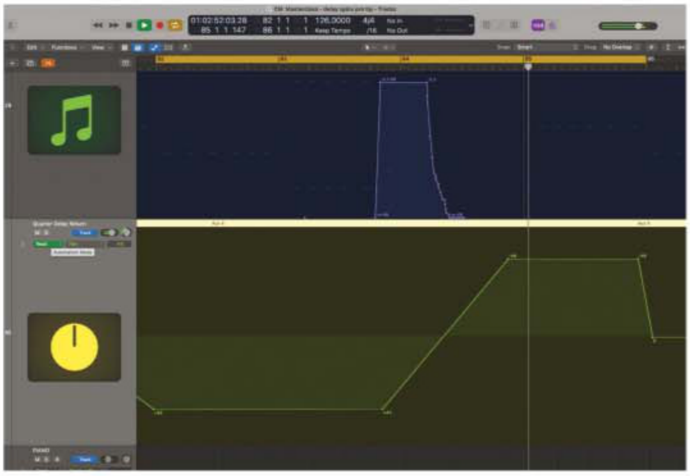
**11** > The timing of the delay will roughly depend on the tempo of the track. Here the example track is at 126bpm and we've set the delay at about 210ms to start with. The plan is to create a slightly chaotic delay spin with a decent feedback level that builds quickly and then dies away quickly.

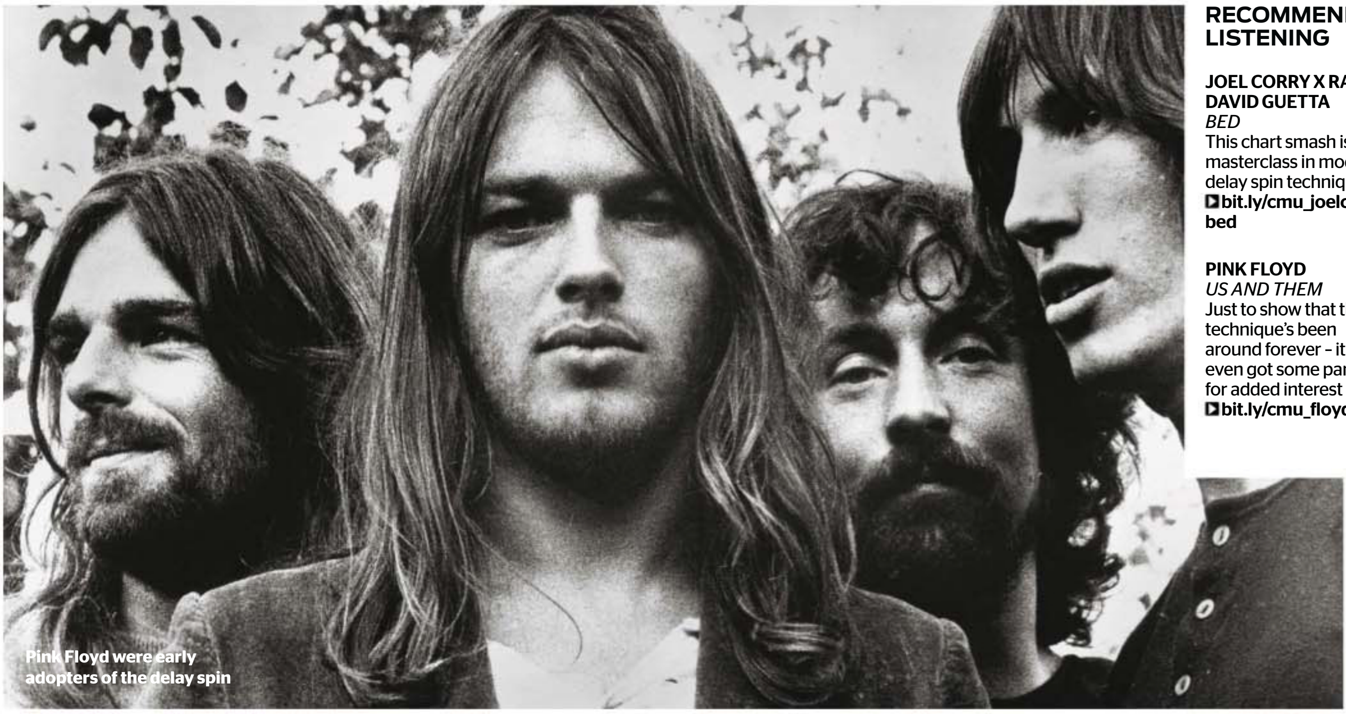
**12** > Finessing this kind of effect requires a bit more automation, and on this occasion we're controlling the feedback amount and return level. This creates a fast build up of the delay, which is then ducked down quickly, and we've reduced the feedback as well to quicken the decay stage.

**PRO TIP**

## GETTING COMPLEX

So far we've only looked at using simple echo-style delays. There are, of course, numerous ways we can modify the delay. Starting with EQing the feedback loop or even EQing the whole delay return, we can also add distortion or even stick the delay through its own reverb. However, shelving the creativity for a moment, let's look at the delay itself. One option is to add static or automated panning to the delay return, or simply use a ping pong-style delay. These options create stereo interest but can also make even more of a feature out of the delay spin. A second option is to use a synced pre-delay before the delay. This isn't quite as bonkers as it might seem, and can be achieved quite easily by inserting a delay on the auxiliary return bus before the main delay and setting its mix to maximum. For this technique to make any difference, the pre-delay must be a different length to the main delay and one option that works well is to use a quarter note pre-delay with an eighth-note spin.




Pink Floyd were early adopters of the delay spin

### RECOMMENDED LISTENING

**JOEL CORRY X RAYE X DAVID GUETTA**
*BED*
This chart smash is a masterclass in modern delay spin techniques
**bit.ly/cmu_joelcorry_bed**

**PINK FLOYD**
*US AND THEM*
Just to show that the technique's been around forever – it's even got some panning for added interest
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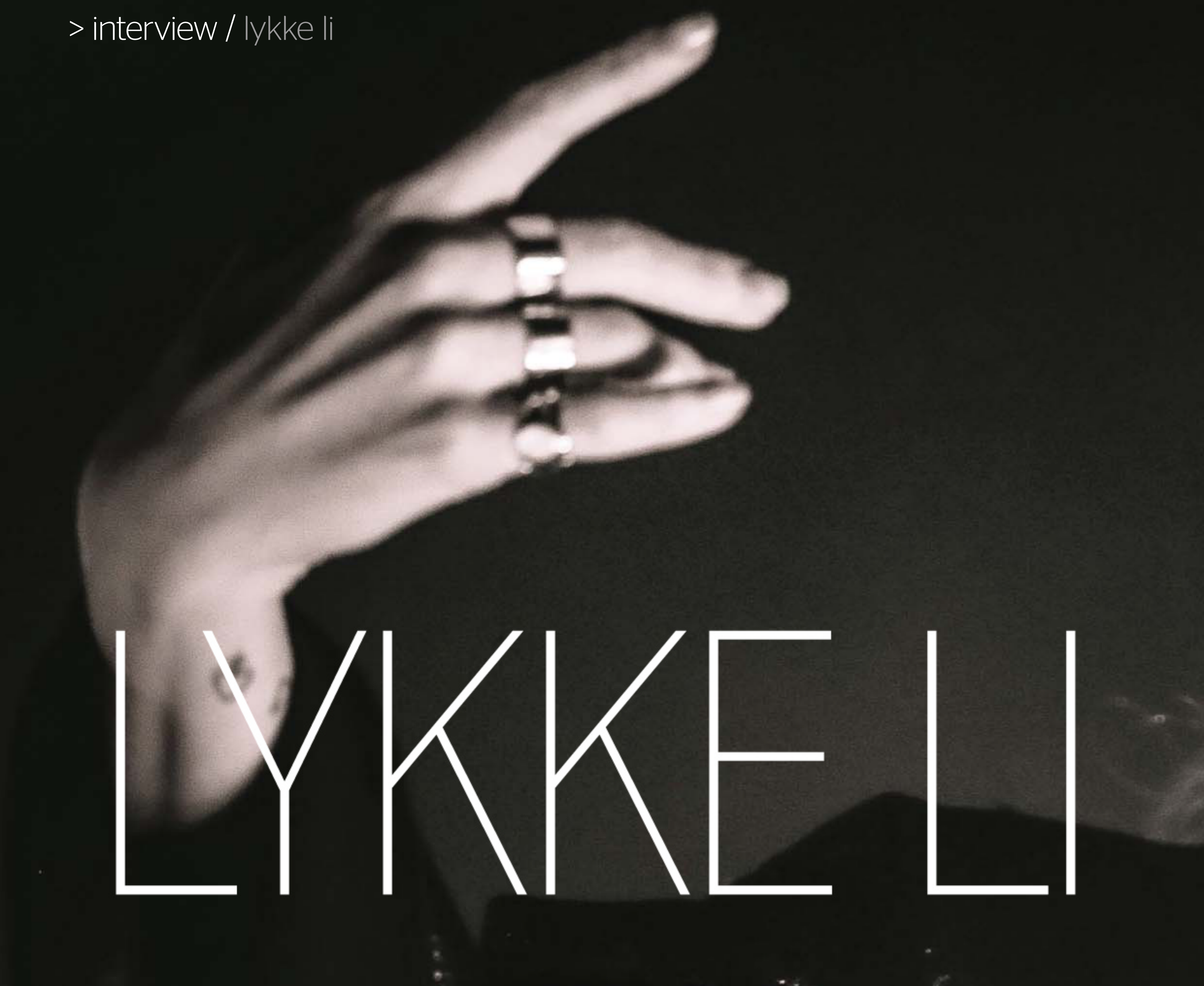


# LYKKE LI

## Ystad, Sweden's finest export shares her vision for new album *Eyeye*, while producer Björn Yttling discusses the many perks of owning a studio formerly used by ABBA

**> On paper, Lykke Li's childhood sounds like one long musical adventure. Born in Ystad, Sweden – the setting, of course, for Henning Mankell's *Wallander* books – Li Lykke Timotej Zachrisson is the daughter of Johan Zachrisson, guitarist with well-known Swedish punk/ska/reggae band, Dag Vag. From Sweden, Zachrisson took his family and his studio to an isolated mountain top in Portugal, then to Lisbon, then India, Nepal and Morocco. Recording with local musicians, experimenting with strange new instruments. Surrounding young Lykke's world with sound.**

"As you said, this kind of childhood sounds great on paper," laughs Lykke. "But the reality of that kind of upbringing is 11 different schools, very few friends, struggling to learn new languages… and a real sense of detachment. Anxiety and insomnia. Moving around like that takes away your feeling of safety.

"As a child, I was lost, but it was music that saved me…"

Photo: Chelsea Lauren/WireImage via Getty

Her 2008 debut album, *Youth Novels* – a sprightly collection of dreamy synth pop tunes, decorated with indie/folk-ish hooks – was an immediate hit in Sweden and far beyond, leading to festival appearances at Glastonbury, Coachella *et al*, not to mention a string of high-profile collaborations.

"The more songs I recorded, the more confident I felt with lyrics. I wasn't scared about diving into the craziness of life or touching on darker subjects. Writing about real heavy shit. On the new album [*Eyeye*, released earlier this year], the lyrics became a sort of diary. I would arrive at the studio and try to channel the daily madness that we all have to go through."

**cm: Like all your previous albums, *Eyeye* was produced and co-written with Björn Yttling of Peter, Björn and John. (Remember the uber-catchy 2006 single, *Young Folks*?) In the past, you always worked in Yttling's Stockholm studio, but most of the early work for this one was done at your LA apartment, with just a laptop, a couple of mics and a smattering of synths and guitars. Was COVID to blame?**

**LL:** "Of course! Travel became difficult, so we had to decide where it would be easiest to base ourselves. My home is LA, I have a child with an American man, so my apartment seemed the obvious choice. And, in many ways, I think it helped the sound of this album. I liked the idea of making an album that was just me and Björn… going back to something simpler. Not worrying about experimentation or how many days we've been in the studio. Just writing songs and being happy when we found something that worked.

"Yes, in that past, we did a lot of work at Björn's place, but there were also times when the record label put us in big, professional studios, which adds a level of pressure that I'm not comfortable with. For the first album, we were taken to New York and we had 10 days to finish everything. I could see the clock ticking on the wall and I knew that, at some point, I would have to do my vocals. That was my first album and, understandably, I was quite scared. I left it until the very last moment and it was hell for me.

"Sometimes, when I listen to that album, it still makes me smile. I wanted to sound powerful and full of life experience. I wanted my vocals to carry all the emotion and the pain that I felt inside. Ha ha! I sound like a young girl… because I was a young girl. That was my voice.

"Because of my upbringing, I do suffer with anxiety and a very extreme nervousness. I like the idea of working hard and being under pressure, but I don't always find it easy to cope with that pressure. That's why this album felt so relaxed. It was just me and Björn in my living room, listening to stuff, making jokes, watching TV, staying up late and trying to work out where a song needed to go. Almost as if we were recording demos."

"Recording *Eyeye* with Björn in my living room felt so relaxed, almost as if we were only recording demos"

**cm: I've read somewhere that Björn likes to work on Pro Tools.**

**LL:** "That's correct. It's a platform that feels a little bit like a tape machine. Obviously, it is digital, but it doesn't always push you to sound digital. On the first album, I remember that he put everything through tape echoes to give the music a bit more of an analogue feel."

**cm: Have you got a studio set-up at home?**

**LL:** "Not really. I have a computer, some keyboards and a piano, but programming is not something my brain copes with. It's not how my brain works. There have been times when I've forced myself to sit down with Logic and Pro Tools and said, 'OK, I really

# Kit list

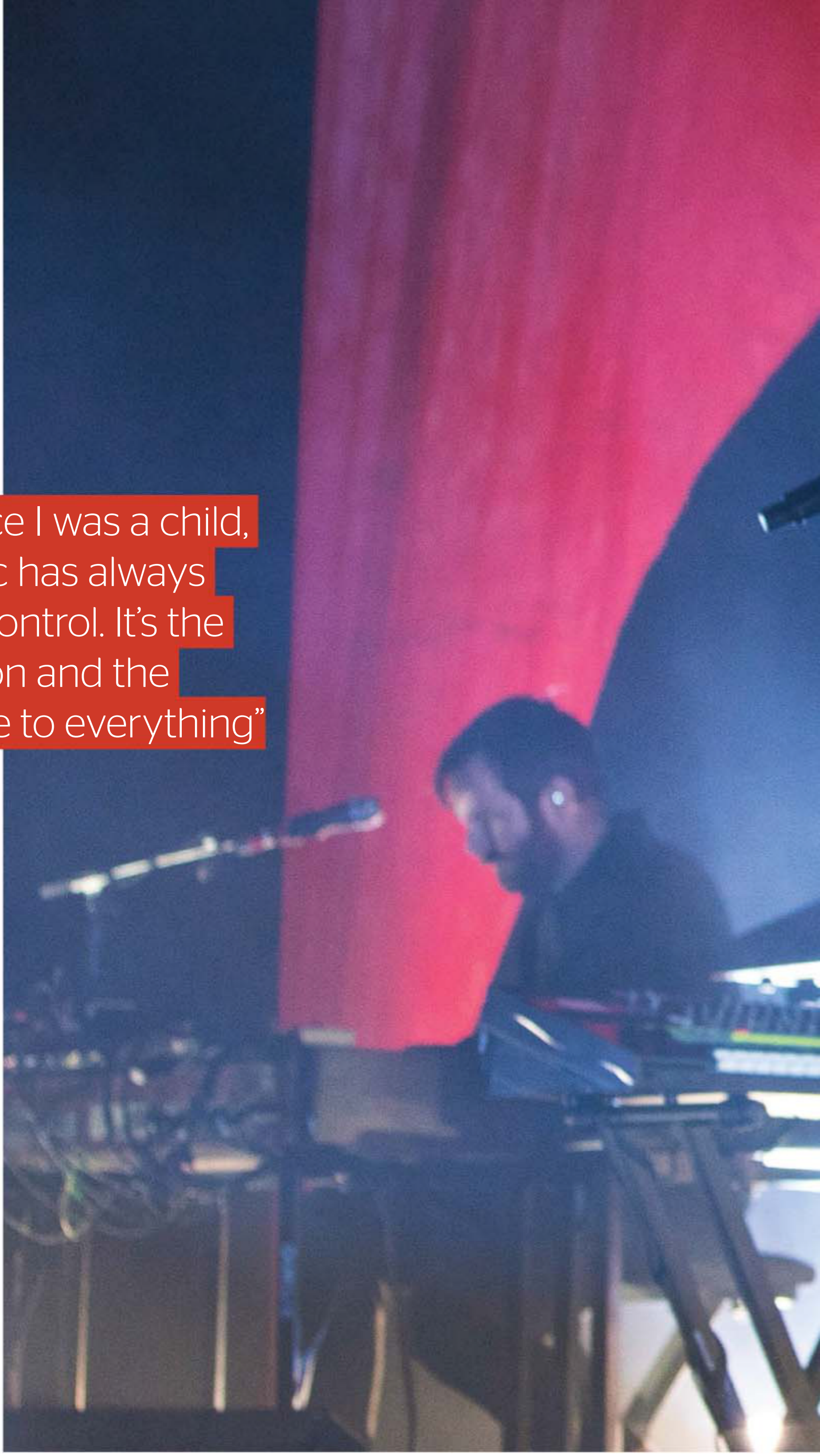
**HARDWARE**
**MacBook Pro**
**M-Audio Soundcard**
**Yamaha Reface (red)**
**Upright piano**
**Various 'old' mics**
**Roland RE-201**

**SOFTWARE**
**Pro Tools**

need to learn this shit', but I never get very far. You have to pick your battles, and I'm far more interested in ideas and words.

"As a solo artist, I decided to take charge of every aspect of my music. The writing, the image, the press pictures, the lighting for the live show, the visuals, the choreography, the videos. Even something as small as whether I need to bleach my eyebrows or not, in order to match a certain outfit.

"Don't get me wrong! I'm not a passive viewer when it comes to time spent in the studio. Every second that Björn is sitting in front of his computer screen, I'm right there by his side. 'What are you doing? Can we move this to the right? What's happening with that bassline?' Screaming and complaining. Interfering in every note and sound. I honestly feel so sorry for anyone who has to work with me! Having to deal with my shit for eight or nine months. That's hard work!"



"Ever since I was a child, the music has always been in control. It's the foundation and the backbone to everything"

**cm: Despite your childhood being difficult, did being surrounded by music in that way automatically push you towards the recording studio?**

**LL:** "I honestly think that any child, irrespective of what their parents do, is fascinated by music. You only have to look at a child's face when they're singing… music makes you feel alive, it makes you happy. It's strange, but when I think back to those earliest years, it's not my dad and the studio that leap into my memories, it's my Walkman and the two cassettes I owned: Michael Jackson's *Dangerous* and Madonna's *Immaculate Collection*.

"When you feel alone as a child, you also feel that no one understands you. Even though it might not be true, you think that you don't matter in this world. I quickly realised that putting on my headphones transported me from my suffering. Music made me feel loved and understood. It made me feel that I mattered. It was a connection that seemed far deeper and more spiritual than anything else I'd experienced in my young life."

**cm: Were there always lots of different instruments lying around the house, when you were growing up?**

**LL:** "Every house had a piano in the living room and, on birthdays, Dad would walk into the room singing with his guitar. I remember walking into Dad's studio and seeing the big analogue delay machines… feeling their warmth. I remember seeing the joy of a recording session during the period when Dad was making a lot of dub reggae. I remember him giving me my first 8-track and a little drum machine. Me picking chords out on the piano.

"But I can also remember this crushing sense of heartbreak and loneliness that was always inside me; way before I really understood what it was. And even when I was older, those feelings never left me. At 16 and 17, I would go out with my friends, but would always end up walking home early thinking, 'This world sucks!'. It was on one of those nights, with the music coming through my headphones – after the Walkman, I got a Discman, and the first CD I bought was Lauryn Hill's *Miseducation* album – that I first glimpsed the absolute power of music. Music could take me away from all the pain."

**cm: Your live shows have become something makes it look like some sort of futuristic musical theatre.**

**LL:** "Going on tour with just a backing track was never an option for me. I wanted people to be able to come and see something that was being played by people on stage. If you're looking for communion between music and the audience, that music has to come to life. When I'm on stage, it feels like an addiction; a love addiction."

Read on for more on the Lykke sound…

Photo: Lorne Thomson/Redferns via Getty

# Half a dozen questions with Lykke Li's long-term producer, Björn Yttling

**cm: How did you and Lykke's working relationship first come about?**
**BY:** "A friend of mine – who also happened to be an A&R man – heard some of her stuff on Myspace in 2005 and thought that we might enjoy working together. She came along to my old studio in Stockholm and played a few songs, but we mostly just talked about music and stuff. I can remember her telling me that she liked Erykah Badu and me thinking, 'Hmm, that doesn't sound right for her'. A few days later, I made her a CD of music that I wanted her to listen to: Dr. John, Suicide, Nick Drake, LCD Soundsystem. I'm not sure that she was too fond of Dr. John, but I got the feeling that she liked where Alan Vega and Suicide were coming from. This idea that you can have melodies coming from the leftfield; melodies that aren't like all the usual pop shit."

**cm: What was your set-up at the time?**
**BY:** "I had a couple of rooms, but you couldn't really call them a studio. It was all low ceilings and not much room to move around. The DIY approach. I had a Mac with an M-Audio soundcard, lots of analogue tape echoes, my guitar and a few weird keyboards. When we recorded Lykke's first album, I remember having the tape echoes running in parallel with absolutely everything. Even though I couldn't afford a proper analogue studio, I did my best to try and make my set-up sound like one.

"I was working on Pro Tools at the time, but I'd only just switched over from Logic. It was that era when Logic was kind of crappy and everything felt illogical. OK, so I have to drag this from here and put that there and create a new track for this bit. Pro Tools seemed more like a straightforward tape machine."

**cm: Would you have preferred to have been working in a fully analogue studio?**
**BY:** "Of course, but you have to be practical. I wasn't against working with computers; I could see the potential of working inside the box. You had so much more control over the sound. You could fuck things up a lot easier. But let's not forget how bad some of the plugins were back then. They sounded shit and they were always crashing. If you had a real Moog, you would obviously use it because the software versions were a poor imitation.

"These days, things are very different; the software is fantastic. Luckily, the success I've had as a producer and with Peter, Bjorn and John means that I was able to buy a lot of analogue equipment when it wasn't so expensive. I have played around with a few of the softsynths, but I always end up coming back to the real thing."

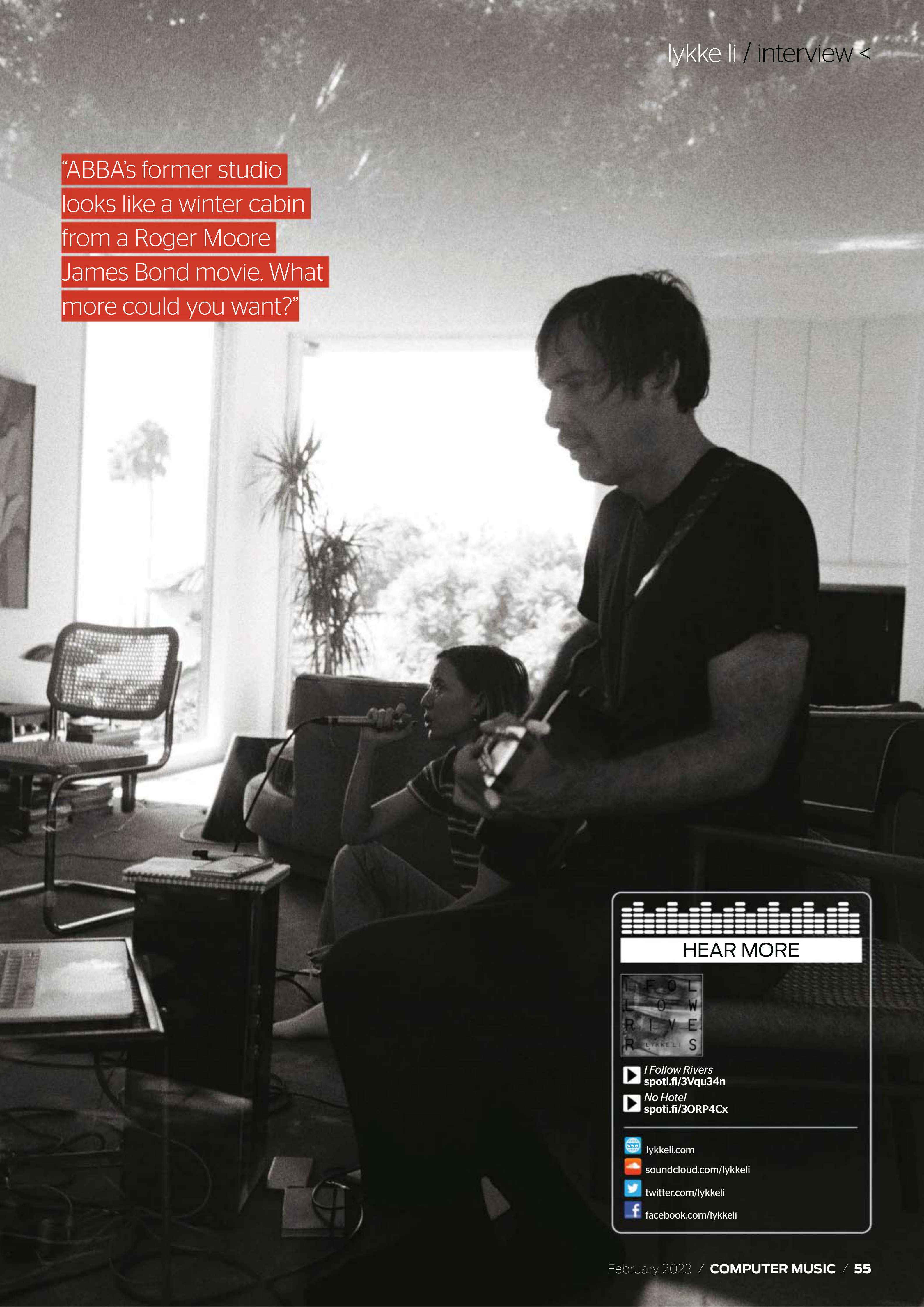
Photo: Ming Yeung / Getty

**cm: The way Lykke described the early sessions for this new album was... casual and unstructured, to say the least.**
**BY:** "Unstructured is a good way to describe them. We had a basic set-up at her place in LA and did our best to capture the songs as they were happening. We didn't worry too much if there was a bit of leakage from the TV next door or if something was slightly out of time. We were after a particular vibe, rather than a perfect production. All we had was my guitar, a bass, the little red Yamaha reface and a bunch of effects pedals. The only time we really messed around with the sound was if the guitars felt too small and personal. We used the multi-effects to make them sound less folky. I wasn't involved in the mastering, but from what I heard, they used the same approach. Nothing too complex."

**cm: As a producer, you've also worked with bands like Primal Scream, Robyn, David Lynch and Franz Ferdinand. Which do you see as your day job: musician or producer?**
**BY:** "First of all I was a musician. Surely, that's how we all start. You learn an instrument, then you join a band, then you get the chance to go into the studio and see how all the technical stuff works. I'm one of those people who is naturally curious, so I would look over the producer's shoulder and ask questions. Then, I suddenly found that the producers were asking me questions: 'Do you think we need more reverb on the vocals?' I remember thinking, 'Hang on, what are we paying you for? Isn't that your job?' So, I wondered if maybe I could be a producer, too.

"At first, I assumed it would be a regulated job with lots of rules, but I soon realised that most of the time, you make it up as you go along. Just make sure you keep it simple. Think about the great sounds from the past, like Motown, Philly Soul and Phil Spector. They didn't change the snare for every song. They didn't ask the guitarist to try a whole bunch of new effects. That was definitely the philosophy on the new Lykke album: we found some sounds that we liked and we used those sounds for the whole album. I think it gives a project more focus."

**cm: Is it true your studio is the former Polar Studio, set up by Björn Ulvaeus and Benny Andersson, where Abba recorded classic singles like *Voulez-Vous* and *Chiquitita*?**
**BY:** "Yeah, crazy, isn't it? It was set up in the '70s and it has a very '70s sound, which is what I love. If you want to get a Fleetwood Mac drum sound, it's perfect. Plus, it looks like a winter cabin from a Roger Moore James Bond movie. What more do you need to make great music?"



"ABBA's former studio looks like a winter cabin from a Roger Moore James Bond movie. What more could you want?"

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# cm/reviews

## The latest computer music gear tested and rated!

**58__GFORCE ODDITY3**
A true Oddity by name and nature, this latest upgrade is much more than the classic synth it's based on


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We bring you honest, unbiased appraisals of the latest computer music products. Our experts apply the same stringent testing methods to all gear, no matter how much hype or expectation surrounds it.

### What the ratings mean

- **1-4**__A seriously flawed product that should be avoided
- **5**___This product's problems outweigh its merits
- **6**___A decent product that's only held back by a few flaws
- **7**___Solid. Well worth considering
- **8**___Very good. A well-conceived and executed product
- **9**___Excellent. First-rate and among the best you can buy
- **10**__Exceptional. It just doesn't get any better than this!

**60** Cherry Audio GX-80

**64** Cableguys Shaperbox 3

**66** Audified Ironverb

**68** Solid State Logic SSL 4K B

**70** Synchro Arts RePitch

**72** Mini Reviews


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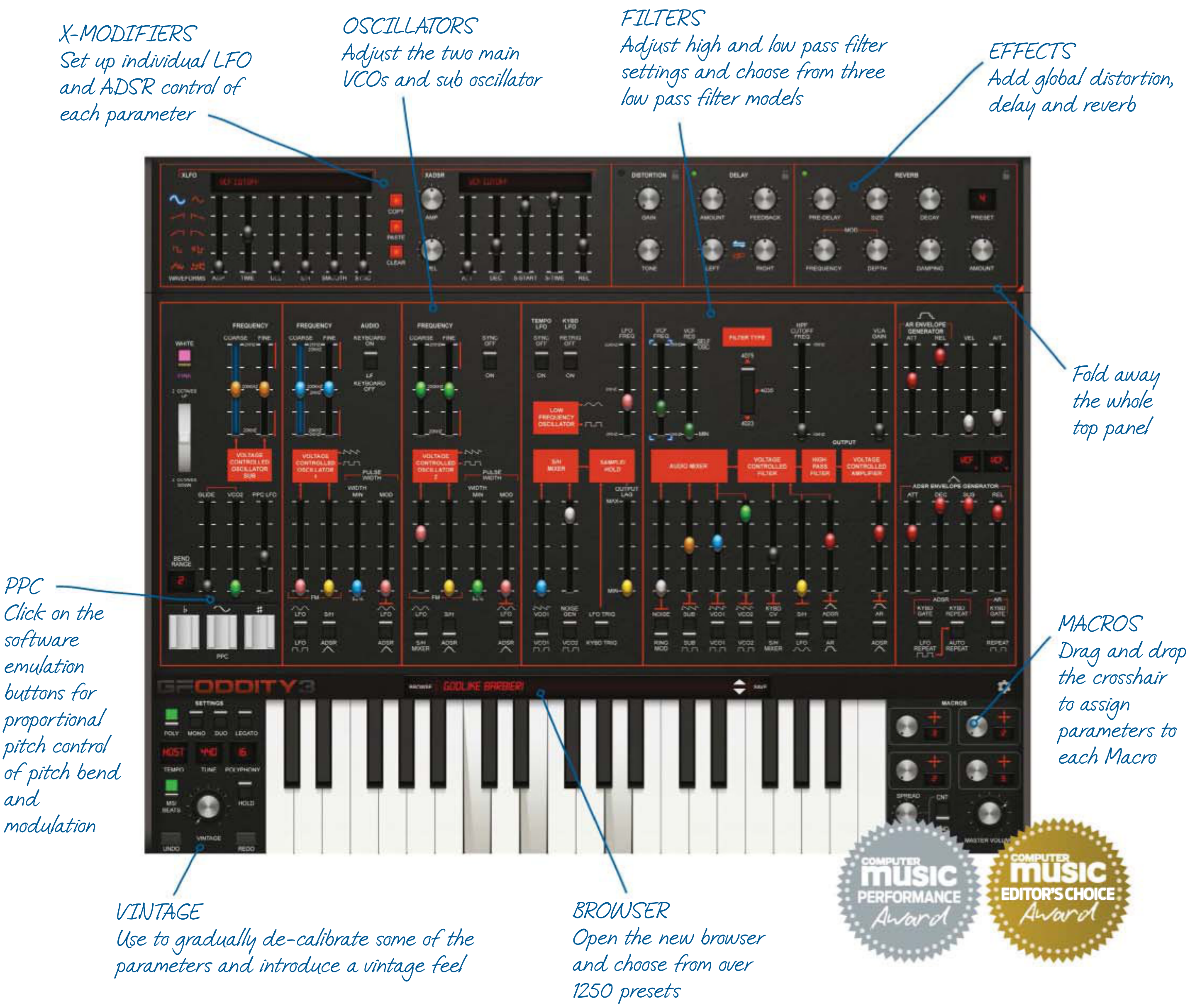



# GForce Software Oddity3 £100 PC MAC

## The aptly named Oddity gets another upgrade, combining core designs with contemporary features

> GForce Software were early to the game with their synth emulations, and it's fair to say their original ARP Odyssey-inspired plugin instrument helped cement their reputation as quality, forward-thinking developers with a healthy reverence for the hardware they clearly love. So here we are, some 21 years later, and the Oddity is getting an upgrade to version 3.

Based around twin syncable oscillators with a tunable sub, Oddity3 (AAX, AU, VST, VST3, Standalone) works in monophonic, duophonic and polyphonic modes (with up to 16-note polyphony). You have highpass and lowpass filters, with the latter available in three flavours to match the three designs used over the life cycle of the hardware synth. There's also a dedicated keyspan Spread panner, and a Ring Modulator that creates an additional complex waveform by inter-modulating the two main oscillators.

Parameter modulation is vastly more flexible than the original synth, and the two X-Modifiers – X-LFO and X-ADSR – are easy to set up and very powerful as you have one of each per parameter. Oddity3 also includes a software emulation of the late MK2/Mk3 Odyssey proportional pitch control (PPC), for pitch bend and pitch modulation. Modulation is via a dedicated LFO and pitch bend provides up to a whopping +/-4 octaves.

> "Although Oddity3 may be based on a classic synth, it has become so much more than that"

So what else is new? First up, Oddity has always featured the black and orange ARP-style visuals. Oddity3 revamps these with a vastly smoother look, fully flexible window resizing and a choice of three skins based on the three original Odyssey versions (MKI, II and III). The X-Modifiers are now joined by three effects – Delay, Distortion and Reverb (all of which can be individually locked when you change presets), and this whole top panel is now foldaway. The play mode has been rehoused next to the keyboard and the keyboard is now flanked by some further new features, including 4 Macros and a Vintage flavour control.

Also new are extensive velocity and aftertouch assignments (seven and 10 targets respectively) and both can control the four Macros. Rounding things off is a brand new Browser (see box out).

## Patch perfect

With the velocity and aftertouch assignments GForce have seriously upscaled the playability in Oddity3. We particularly like being able to control the Macros, which in themselves offer awesome flexibility. Add to that the easy drag and drop Macro assignment, and the slider heavy Odyssey style interface really comes alive. GForce synths always sound incredible and Oddity3 is no exception. But what really caught our attention were the new patches.

First up, they all come loaded with four Macros, so they're instantly tweakable in fun and creative ways. But secondly, the patch programming is simply awesome, making impressive use of the X-Modifiers and extra effects to help you deliver rich, developing, individual sounds that will really enhance your productions in a big way.

Use the new browser to navigate the presets and audition their Macro assignments

## Presets

**It's not unusual for classic synth emulations to offer a paltry selection of presets, and this could be influenced by the original hardware, which maybe only had a handful of presets if any. Thankfully, GForce have followed the totally opposite path with the Oddity emulations and in version 3 the 1000 or so legacy presets from versions 1 and 2 have been overhauled, recategorised and tagged. They are joined by 66 presets based on the original 1976 and 1981 manual patches, and a raft of brand new presets from the GForce team and renowned synthesists. That's a whopping 1250+ presets in total that you can filter by category, type and timbre, search by name, and then audition using the Audition button in the brand new Browser. There's a user editable favourites list and a factory set alpha list. You also have four Macro knobs, so where applicable you can try out the Macros while preset surfing.**

With softsynths it's easy to get stuck in a 'more of everything' mindset, but GForce continue to show that combining classic core designs with contemporary features is equally valid, and although Oddity3 may be based on a classic synth, it has become so much more than that. Top marks. **cm**

**Web** www.gforcesoftware.com

The three hardware inspired skins combine with new graphics to deliver a much slicker look and feel

## Alternatively

**Arturia Arp 2600 V**
**cm082 » 08/10 » €149**
This excellent 2600 emulation from Arturia delivers a similar sonic vibe to the Odyssey

**AIR Music Tech Odyssey**
**£150**
A circuit-modelled quality emulation of the Odyssey from the WayOutWare team

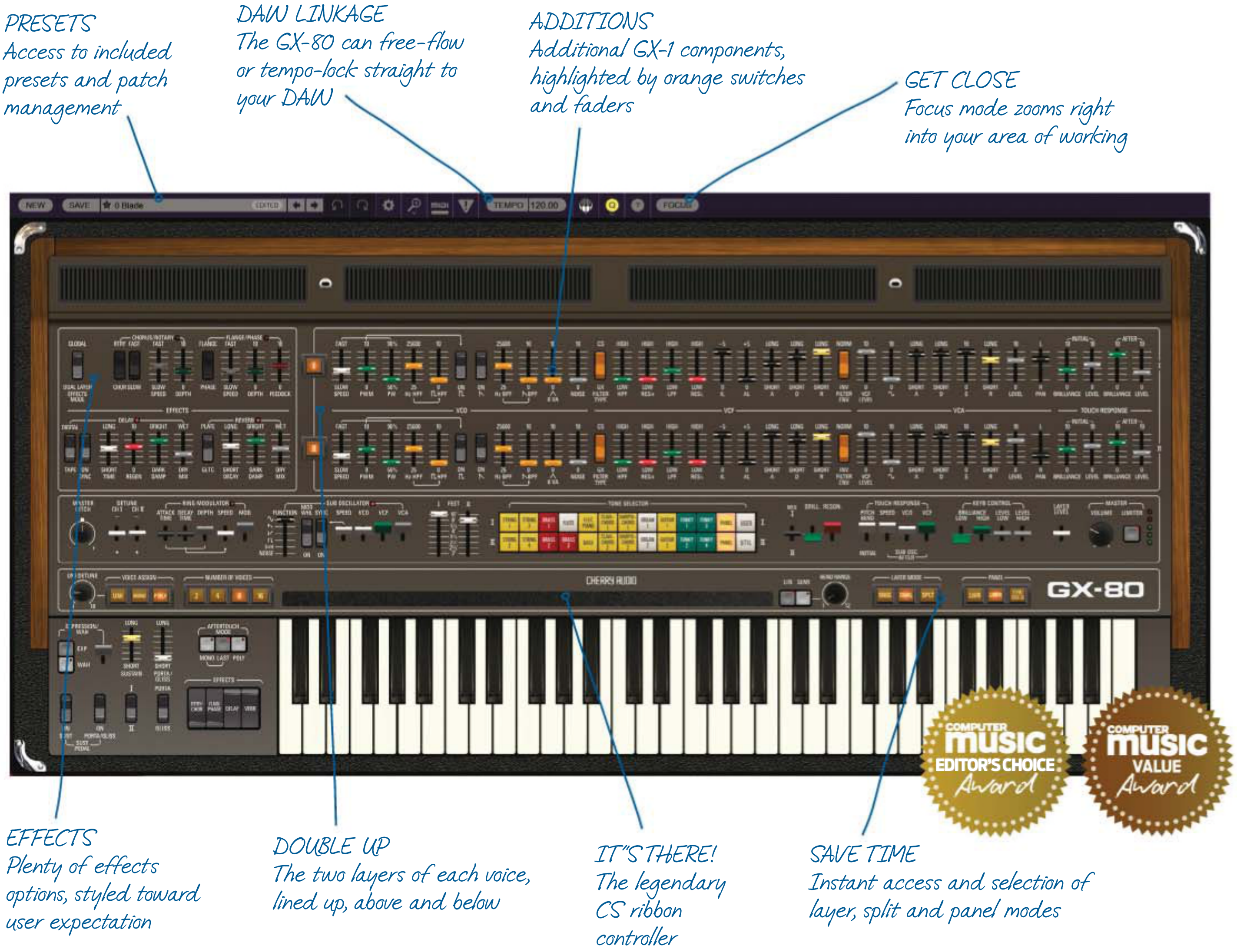
## Verdict

**For** New Macro feature
Powerful X-Modifier modulation
Fantastic new patches
Quality new graphics with resizable window
Choice of Odyssey-inspired skins

**Against** Nothing

Oddity3 looks good, plays great and sounds awesome, and is now so much more than a classic synth emulation

**10/10**




# Cherry Audio GX-80 $59

PC MAC

Cherry Audio's latest behemoth-of-a-synth is a plugin for a utopian future, exclusively from the vintage past...

> According to the fine folk at Cherry Audio, one of the most requested instruments for re-styling in software is the '70s iconoclastic synth from Yamaha, that continues to be the stuff of legends.

## Replicating the machines

Upon opening the GX-80 for the first time, it's an impressive beast; there's an undeniably busy panel of faders and buttons, albeit in a virtual form, which adopt the identifiable persona of the Yamaha CS-80. It's all there, right down to the ribbon controller, which resides just above the keyboard. Play a note and apply a pitch bend, and you will see a virtual outline of your finger traverse along the ribbon. That's such a nice touch! There's quite a bit to get your head around with the GX-80, but with the provision of 1,000 presets, inspiration is quickly around the corner, and with a control panel this elaborate, it would be daft not to get your virtual hands dirty and explore.

As Cherry Audio have previously demonstrated through other plugins, the included Focus mode feature enhances engagement brilliantly, immediately enlarging your area of work. It's very welcome here, as the panel is bedecked with editing content, and using Focus allows you to do exactly that.

As you delve deeper, you become aware that this is more than CS-80 clone. Work began on this plugin well over a year ago, but it became apparent quite quickly that going further back in Yamaha's history could be an enticing prospect. Hence you will find reference to a GX-type filter, which relates to additional elements, added from the Yamaha GX-1. Cherry keep the CS-80 construct, but add those extended GX niceties, which are differentiated

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“Cherry Audio have created the most impressive visual and sonic spectacle available in software”

with an orange colouring. These are mainly confined to filter variants, but the timbral colour options are useful, adding more to the palette.

## The sounds of Tyrell

The CS-80 has become so synonymous with certain artists such as Vangelis, it is difficult to ignore the temptation to go into full *Blade Runner* mode. No surprise then, but the first patch in the preset bank is called ‘0 Blade’. Bolstered by an impressive set of on-board effects, it does sound enormously gratifying. Load the GX-80 in its standalone format, and you can get lost in your playing in a matter of seconds. The initial tone selections and patch starting blocks hark back to a vintage age. The sounds which could be regarded as dated, present a glorious charm which is undeniably engaging.

The editing and programming side of the GX-80 is relatively uncomplicated, comprising of two oscillator components per voice, which are summed to create a patch. Where this begins to demand your time, is with the bewildering number of filter and modulation settings that can be utilised. It’s clear and concise, but there is just an awful lot to take in. However it does not take long to get to grips with the basics and find your inner programmer. Then it’s possible to layer and split your workings, as if the GX-80 didn’t sound huge enough already!

## The full flight case

If there was ever a synthesiser to model in software, the CS-80 would be high on the agenda, and not least of all due to the excessive weight of the original. As usual, Cherry Audio have taken a concept, extended it and elaborated upon the original machine, and created the most impressive visual and sonic spectacle available in software. It is an impressive beast on all fronts, with the ability to sound soft, elegant, engaging and enormous, in equal measure. **cm**

Web www.cherryaudio.com

**Diving deep into the GX-80 parameters is a total breeze, thanks to the Focus mode**

## Programming in practice

**We can’t lie, we have seen products like this before from other companies. Some have felt a little confusing, in no small way thanks to the complexity of the interface, which has felt fiddly to use with a mouse on screen. From the outset, Cherry Audio’s Focus mode gets around this problem, immediately zooming the area that you wish to work on, while also allowing for quick and easy moving around, while in a zoomed state. The net result is that GX-80 is incredibly easy to use, while right-clicking throws open the option to assign a fader to MIDI CC. The only problem with this is that there are so many filter options that you may well find yourself running out of MIDI faders very quickly. Not withstanding, this is one of the best examples of a synthesiser plugin that invites you to learn its attributes, inside and out. Move away from the presets, and get creative, and the sonic rewards can be huge, much like the sound of the original CS-80.**

## Alternatively

**UVI CS-M**
**€79**
The CS-M collection contains sampled examples of the Yamaha CS-20, 40 and 70 in one package

**Arturia CS-80 V**
**€199**
A now-tidier interface, layered with the usual icing of Arturia effects for pure CS-80 charm

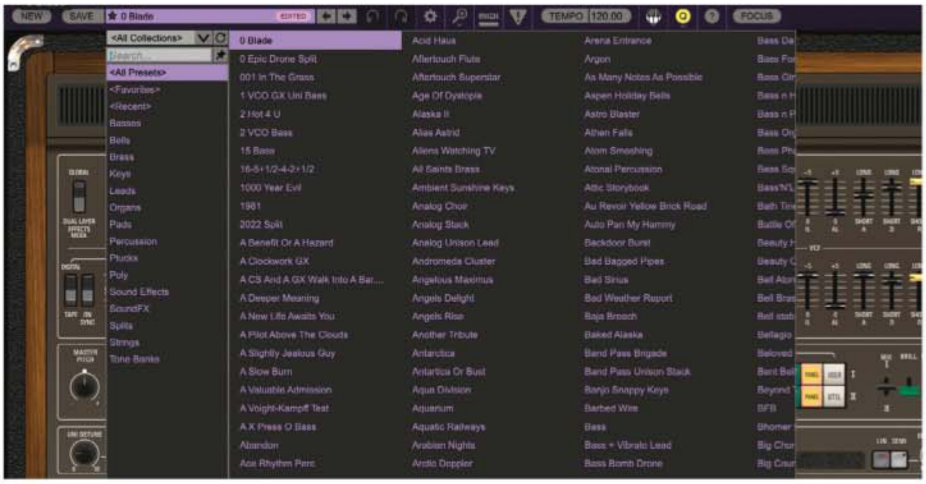
## Verdict

For Extraordinarily comprehensive model of the CS-80
The parameters are clear and concise
1,000 onboard presets

Against We’d love a hardware ribbon controller to go with it! Who wouldn’t?

The GX-80 is about as classy as it’s possible to get in software synthesis, with an impressive soundstage, plenty of extra parameters and a dream-of-an-interface

**10/10**



**Presets aplenty here, and all demonstrating how good this synth is...**

# PRO TOOLS

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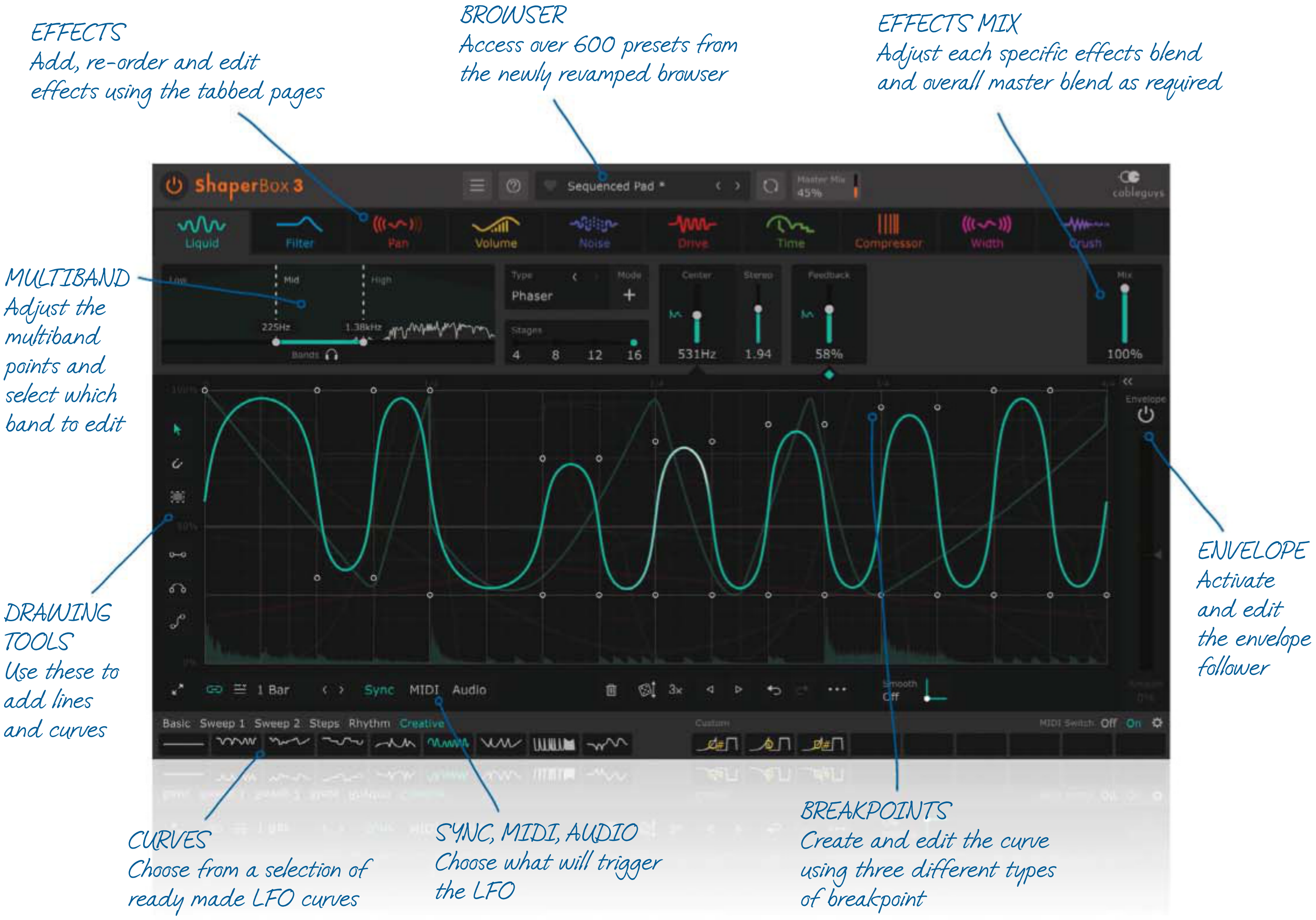



# CableGuys ShaperBox 3 €99 PC MAC

If you like dynamic effects, you'll love the latest version of this impressive multi-effects package

> ShaperBox 3 (AU, VST, VST3, AAX) is the latest incarnation of CableGuys excellent multi-effects package. The bundle includes their current key audio effects (normally €39 each) and at €99 is clearly an excellent deal. It includes one new effect (Liquid phaser/flanger) taking the total to nine, and also a separate Compressor module, so you have ten options in the chooser. As before, you're limited to one instance of each effect, but effects can be re-ordered to taste.

Effect types now include noise, volume, time, drive, filter, phaser/flanger, crush, pan, width and compressor, and all are multiband (3-band) with band solo. The nine effects have highly customisable LFOs for each band, and some effects such as Liquid, Filter and Crush have more than one controllable parameter, each with their own set of LFOs. The LFOs are syncable to DAW playback, triggered via MIDI or triggered by audio. The result is amazingly dynamic effects and the more than 600 categorised presets give an excellent window on what's possible. If you want our take on the existing effects, check out the *Computer Music* review of ShaperBox 2 (**cm**278) and also reviews of individual plugins added since, namely DriveShaper, CrushShaper and NoiseShaper.

## Shape Shifter

The ShaperBox 3 interface looks familiar but on closer inspection has actually had a significant overhaul. In addition to a modified parameter

> "ShaperBox 3 allows you to really take control to achieve the outcomes you want"

layout, the scientific look has been swapped out for something softer and less techy. Dig a little deeper and the curve editing has also been improved (see box out).

The new effect, Liquid, is a flavour-packed phaser/flanger. In phaser mode you have four stage options (4, 8, 12 and 16) with peaks or notches setting, meanwhile in flanger mode you can switch the polarity of the feedback signal. Both include a pitch shifting stereo width control. Feedback and Centre frequency parameters are each linked to their own LFOs. Whether you're after some edgy phasing, a flange-tinged envelope, or simply want to rustle up some comb-filtered sweeps this new effects module is a very welcome addition.

Next up, audio triggering. Much like KickStart 2, effects modules now include audio triggering, so you can set the LFO to retrigger from the audio itself or the external side chain, and also generate MIDI note output. With the 'Show External Sidechain' feature you can also see the sidechain waveform, which is handy. We had great fun using audio triggering with the Volume effect, creating advanced gating effects for all manner of sounds. What's more, in the Global Audio Trigger Setup it's possible to really drill down on the behaviour, fine tuning the threshold, trigger frequencies and sensitivity.

Finally, ShaperBox 3 includes a new browser. This has eight usage categories (Sound Design, Rhythmic, Motion and so on) coupled with more specific descriptors (Glitch, Noise Patterns, Builds & Risers) and now includes a favourites list. It definitely offers a much better solution than before, but also shows how hard it is to categorise the effects. We're glad to see the continued use of effect colour coding, which you can also use to fine tune your search.

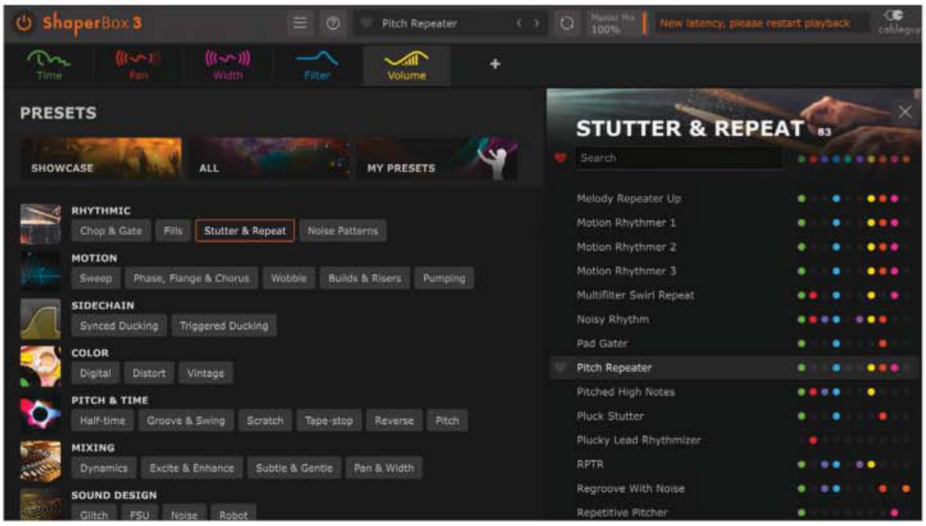
For transformative effects, ShaperBox 3 is an ideal package. It allows you to really take control of the effects and apply loads of dynamics to achieve the outcomes you want. And, with audio and external triggering, it is now more powerful than ever. **cm**

**Web** www.cableguys.com

**The revamped LFO editing lets you select a section of the curve to move and rescale**

## Wave Editing

**Graphical editing is a cornerstone of CableGuys plugins, and none more so than in ShaperBox's LFO editing. To be fair, we thought it was already pretty straightforward to use, adding breakpoints with a mouse click and cycling through their three curve options (soft, medium and hard). Nevertheless, ShaperBox 3 reworks this, delivering even slicker and ultimately quicker functionality, once you re-program your brain to use it slightly differently, of course. One significant change is that the default breakpoint created by a mouse click is a hard angle and clicking the breakpoint toggles between straight line and curve. You also now have an optional right click breakpoint menu to choose the type (soft, medium and hard). There's now a lasso feature to move, rescale and reshape a section of the curve as one, and you still have the pen tools (lines, arcs and curves) to quickly create shapes. The upshot is less mouse clicks to get where you want to be.**




**The new browser includes task specific categories and is much easier to navigate**

## Alternatively

**Devious Machines Infiltrator 2**
**£100**
Effects and presets are coupled with their on/off effect sequencer in this impressive plugin

**Unfiltered Audio BYOME**
**cm264 » 09/10 » $149**
Effects, integrated modulation and external sidechaining make this great for creative and mixing duties

## Verdict

**For** New flanger/phaser effect and independent compressor module
Visual redesign with smoother graphics and simpler layout

**Against** Still only one instance of each effect available

ShaperBox 3 lets you sculpt complex and impressive dynamic effects with ease, and is a perfect tool for contemporary producers and sound designers

**9/10**

# Audified Linda IronVerb

PC MAC

## $99

### Algorithmic reverbs are widespread, affordable and sometimes a bit uninspiring. This latest design attempts to redress the balance

> Linda IronVerb (AU, AAX, VST3) is an algorithmic reverb and is the second plugin developed by Audified in collaboration with mixing and mastering engineer Martin Linda. The reverb features a number of familiar parameters including Size, Predelay, Modulation and Damping, and at its core are six quite distinctive algorithms (Flutter, Plate, Slapback, Dense, Steel and Steel 2) as well as two room size options (Normal and Long). The plugin takes its name from a rather intriguing adjustable modulation parameter, Ironize, that imparts a smooth metallic character to the sound.

Before we look at how the Ironize option sounds in use, it's worth saying that IronVerb's focused feature set is incredibly straightforward to use. Over on the left you can adjust the core algorithm. Size settings vary from Small to Big, and this combines with the Feedback parameter, which sets the regeneration of reflections. Although there are no numbers here, with maximum settings for both you can achieve rich dense reverb tails well in excess of 10 seconds. You can also tailor things with the Predelay (0 to 500ms) and stereo Width control. Over on the right, the Hi-Pass works in conjunction with the Reso control to help clear out unwanted low frequencies and can be particularly sharp at higher resonance (Reso) settings. Meanwhile, with frequency settings ranging from 100Hz to 15kHz and an adjustable damping amount, the two Damp controls can tidy up the top end.

"Linda IronVerb is a treasure trove of flavoursome reverbs, ideal for short-to-medium-size spaces"

## The Iron Lady

IronVerb's modulation section includes regular LFO-based modulation with Mod Amp and Mod Speed controls, and also the Ironize parameter. All three can have a significant impact on the sound, and if you're after an obviously pitchy outcome, the two main modulation controls are simple but effective. The behaviour of the Ironize control is less easy to categorise. With longer reverbs it has a smearing effect, so for example with the Slapback algorithm, as you increase the Ironize control the very obvious early reflections gradually blend away and with Ironize at max you have a much thicker sound. Turn it up on either of the Steel algorithms, and the original thinner effect becomes denser and less bright. With short Size settings the effect is far more ringy, and this is where it reveals its modulation characteristics. This is particularly obvious with the two Steel algorithms, and it's very noticeable with shorter reverbs that winding up the Ironize effect will also extend the audible tail.

IronVerb includes 70 categorised presets that successfully demonstrate its sonic capabilities, and the vast majority deliver plenty of flavour. There are some excellent drum presets, and if you're after dense, short reverbs to complement classic boom bap sounds (Drum Medium Room) or bright short effects to liven up snares (Snare Smash 2) IronVerb is instantly pleasing. If you want longer effects you'll find some make excellent use of the Long room setting (Pad Long and ShoeGazer Ending), and these can easily be tailored using the Feedback and Ironize parameters.

Overall, Linda IronVerb is a treasure trove of flavoursome reverbs and is ideal for short-to-medium-size spaces. In terms of pure parameter flexibility it may not be as tweakable as many algo reverbs we've tried, but the algorithms are well tuned, and very useable. **cm**

Web www.audified.com

**IronVerb has six flavour-filled algorithms**

## Algorithms

**Although it's great to have adjustable parameters and a decent batch of presets, a reverb's success really boils down to how well it works in context. IronVerb's algorithms definitely fall into more coloured territory, and this is particularly true of Flutter and Slapback, both of which focus on the early reflection aspects of the reverb. If you're after a straight-up rich effect then Dense fits the bill. Meanwhile, the two Steel algorithms are based on a steel barrel-type effect. Of the six algorithms, Plate is probably the nearest to a run of the mill algo reverb, but even this with its vintage leanings is pretty coloured. You won't find any typical hall or church-type effects, and although the plugin is perfectly capable of longer, more expansive sounds (and there are plenty of presets to prove it), it's the rich sounds that it excels at.**

**IronVerb's preset library includes some fabulous drum-focused examples**

## Alternatively

**Valhalla VintageVerb**
**cm191 » 09/10 » $50**
Classic reverb sounds combined with a simple interface, and all at an amazing price – job done

**JMG Sound Hyperspace**
**cm275 » 09/10 » £115**
If you like to get creative, then this highly-flexible algorithm-designing reverb is an excellent choice

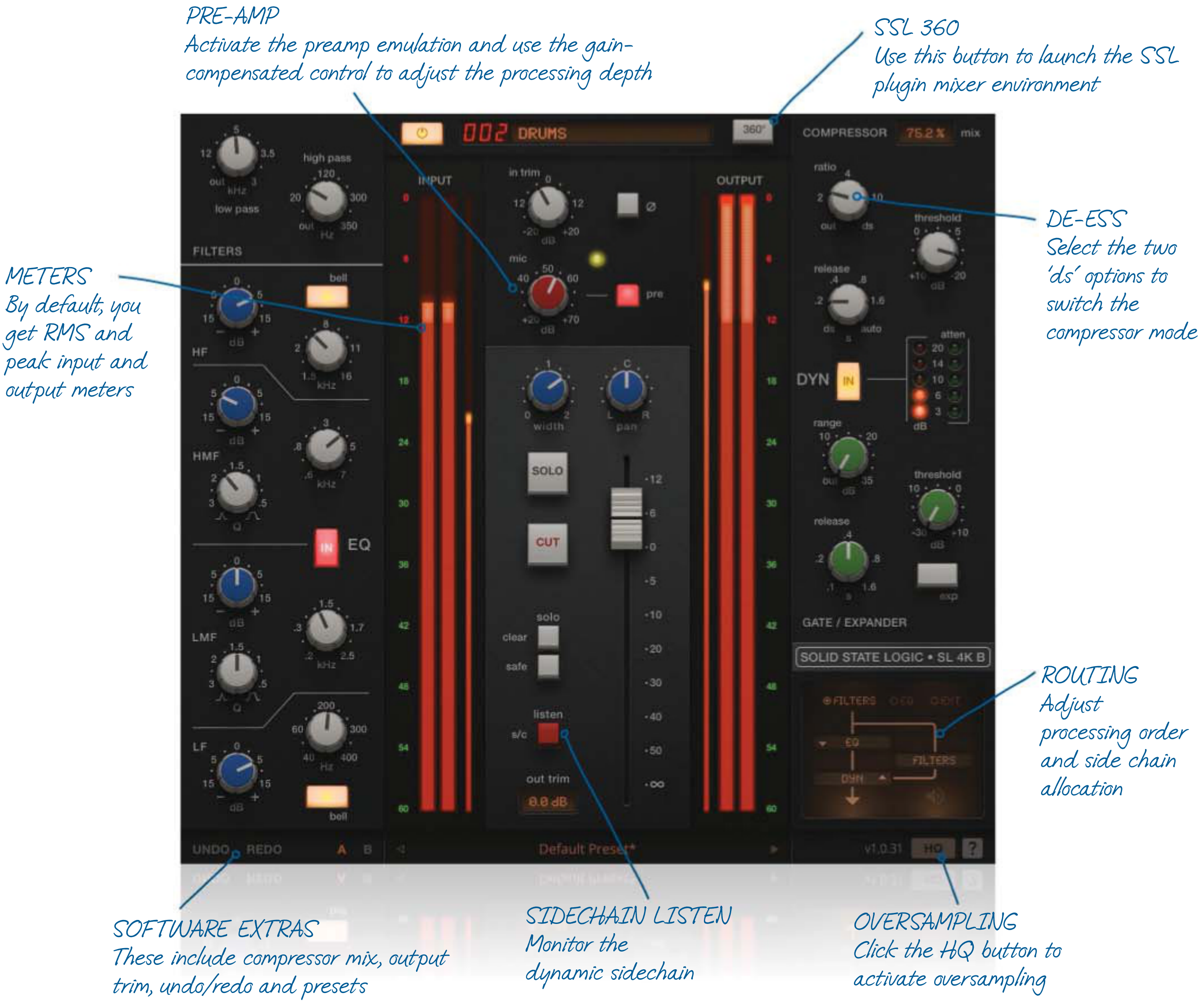
## Verdict

**For** Simple interface
Choice of six algorithms
Powerful and unusual Ironize control
Great for flavoursome reverb effects

**Against** Limited advanced editing parameters on offer

Linda IronVerb is definitely not a do-it-all processor, but if you're after a flavour-packed reverb capable of some pretty extreme outcomes, this could be for you

**8/10**




# Solid State Logic SSL 4K B

**SSL** PC MAC

It seems right and proper that SSL themselves are first to release an emulation of their early B series desk. Let's see how it performs

> SSL has developed numerous excellent plugins, but with the arrival of their Native Channel Strip 2 and UC1 hardware controller they've taken things up a level. The latest addition to this system is SSL 4K B. Based on their rare early 4000 B series desk (only six were ever built), they've gone back to basics and used component-level modelling coupled with their own specialist know-how to deliver a vibey channel strip that's the perfect partner to the Channel Strip 2.

So, what are you getting? Much like the Channel Strip 2, the 4K B is a full strip, based sonically and visually on SSL's hardware, but with plenty of software extras. It works as a regular plugin and also dovetails with their UC1 hardware controller. It's currently free for UC1 owners, and is also included in their SSL Complete subscription package. Alas at present there's no perpetual licence option. It includes the obvious stuff such as 4-band EQ with two fully parametric mid bands, low and high shelves with independent Bell option, and high- and low-pass filters. There's also a combined Dynamics section with Compressor and Gate/Expander, and accompanying LED meters. In the centre you'll find the main fader section (with Cut and Solo) flanked by input and output meters (Peak and RMS). Stereo plugin instances also include Pan and M/S Width.

At the top are the input gains including the switchable 4K B pre-amp saturation option. Software extras are dotted round the interface

> "As channel strip plugins go, the 4K B is about as well-equipped as you'll find"

and include compressor Mix level (0 to 100%), Output Trim (-20dB to +20dB), side chain listen, Undo/Redo, the preset browser, oversampling (HQ), the SSL 360 launcher (see box out) and the routing menu, where you can also assign EQ, Filters and an external source to the dynamics side chain.

## Flavour Flav

Despite the visual familiarity, the 4K B differs from the Channel Strip 2 in some important ways. First up, the compressor. This is much more like the classic SSL bus compressor, albeit with automatic gain makeup, and without adjustable attack and fewer release settings. At both 2:1 and 4:1 ratios, this delivers the classic SSL feedback compressor vibe. It can also be switched to de-esser mode (set both the Release and Ratio controls to the 'ds'). This is easy to implement and we found great for taming high frequency harshness, not just de-essing.

Of course, the big deal with 4K B is the sound. It's clearly more coloured than Channel Strip 2, and on the analyser adds an obvious second harmonic distortion even when flat – this is down to the dbx202 VCA emulation. Switch in the 4K B transformer based pre-amp saturation modelling and you get more complex harmonics. Here the even harmonics are boosted at higher frequencies, and the odd harmonics (but not the even harmonics) increase as you change the red gain-compensated saturation knob. It's an interesting profile, but is great for adding some spice to lacklustre sounds. Load up multiple channels and you'll get desk-style harmonic enhancement, which is ideal for multitracked sounds such as drums.

360 provides a consolidated environment for your SSL Native 2 channel strips and bus compressors

## SSL 360

**SSL 360 is a consolidation window that allows you to view all your SSL Native 2 plugins at the same time. It's arranged like a traditional mixing desk with all the respective SSL plugin controls visible. It's also an integral part of SSL's UF8 and UC1 DAW controllers. Whether this will interest you very much depends on your working methods, and if you're using just a few instances of the 4K B it's probably not much help.**

**However, if you use a 4K B or the Native Channel Strip 2 on every channel combined with a few Native Bus Compressor 2's, which you'll see over on the right, then you have a pretty compelling environment. Throw in the solo and mute features, the zoom option and the unquestionable beauty of the design, and you've also got a clear demonstration of what an SSL DAW could look like.**

As channel strip plugins go, the 4K B is about as well-equipped as you'll find. Add in the vibey harmonics, 360 implementation and beautiful visuals and you've got a winning design that's the perfect companion to the super clean Channel Strip 2. **cm**

**Web** www.solidstatelogic.com

The categorised preset bank includes some pro producer patches

## Alternatively

**Waves EMI TG 12345 Channel Strip**
**$249**
If you're after a flavour-packed channel strip, check this out

**Lindell Audio 80 Series**
**$249**
A Neve-inspired, feature-packed channel strip that puts into play the Brainworx's Tolerance Modelling technology to full advantage

## Verdict

**For** Rare SSL design in plugin form
Controllable pre-amp saturation
Flexible side chain configuration
Compressor includes de-esser option
SSL 360 integration
Free for UC1 owners

**Against** No perpetual licence option

The SSL 4K B is a lovely plugin that lets you decide how much of the hardware flavour you want to dial in

**10/10**

MACRO PRESETS
Select a macro to apply broad overall pitch correction

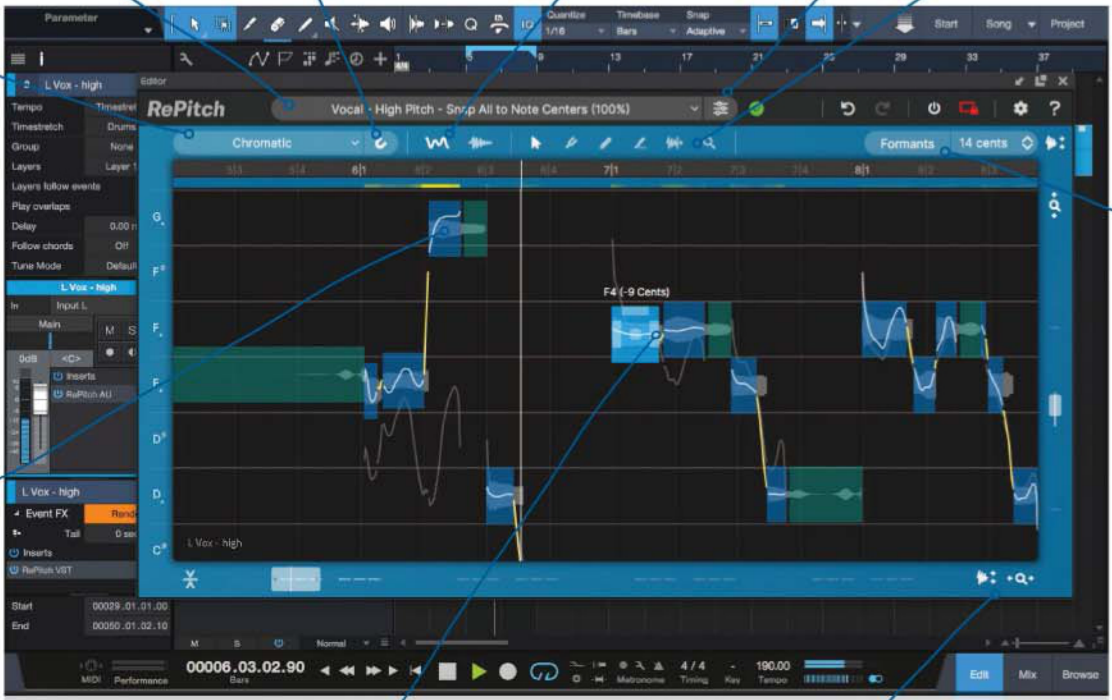
MAGNET
Select this option and use Alt + cursor to snap pitch changes to the scale

PITCH OR LEVEL
Choose the appropriate view for your task

MACRO SETTINGS
Edit the behaviour of the macro presets

TOOLBAR
Select from a number of editing tools

SCALE
Select the musical scale or simply stick with the one RePitch has automatically chosen




FORMANTS
Make global changes to the formants

PROCESSING HEAT MAP
At the top of the display a yellow line indicates the processing intensity for that section

NOTE BLOCKS
Use the note block handles to edit overall pitch, pitch drift and expand and contract the corresponding audio

ZOOM
You can independently adjust the waveform height and key scale zoom parameters

# Synchro Arts RePitch £178

PC MAC

Pitch correction software is widely available and comes in many forms. Let's see what features this new plugin has to offer

> Synchro Arts has built an impressive reputation through their VocAlign and ReVoice plugins, but they've never had a processor targeted solely at pitch correction. RePitch (AU, VST3, AAX, ARA) is precisely that processor and it draws from their tried and tested technology. It supports ARA (see boxout) as well as regular plugin formats using manual Capture. It also integrates with VocAlign Ultra so you can use your RePitch track as a guide.

RePitch is very much a graphic-driven design with only a few parameter controls. The interface includes pitch scale on the left, and below and to the right you'll find navigation sliders and separate zoom controls for both the waveform height and pitch scale. With audio loaded, parameter blocks are superimposed over the waveform.

Audio is categorised as either voiced (pitched) or unvoiced (unpitched) with the former green and the latter blue, and understandably you can't pitch correct the unpitched audio. The menu bar at the top accesses two main views (Pitch and Level), and as you might guess, these superimpose pitch and level curves respectively on the parameter blocks. Separating these two key functions is not entirely necessary, but it does make it clear what you're doing and we found it worked very well in practice.

RePitch automatically sets the scale, though you can easily override this. And it also includes a bunch of vocal- and instrument-targeted macros, which offer a great starting point. For more specific edits of pitch and level you can simply shift whole blocks, or by using the

> "RePitch is impressively free of dodgy digital artefacts, and for regular pitch correction it sounds very natural"

context-sensitive block handles, adjust things such as pitch drift, correction speed, level drift and even contract or expand the block timing. For more specific timing changes you can drop in further warp markers. Finally, and impressively, the pencil tool allows you to simply draw in level and pitch curves. Awesome stuff.

## Perfect pitch

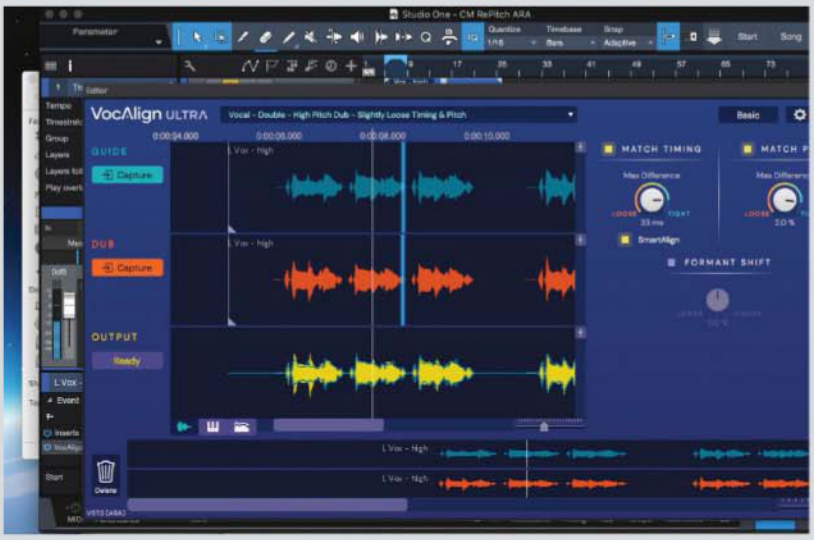
The operational aspects of RePitch are pretty easy to master, and although it's not as instantly gratifying as some real-time plugins, where you can simply increase the speed to create extreme effects, those outcomes are still achievable either on individual sections or across the whole audio part if you lasso all the blocks.

Where RePitch really excels is its sound, or more specifically lack thereof. We found it impressively free of dodgy digital artefacts, and for regular pitch correction it sounds really very natural. So if you just want to tighten up a good performance without any hint that it's been artificially tuned, then this absolutely fits the bill. More ambitious changes can also be achieved, particularly coupled with the context sensitive transitions block, which modifies the yellow transition line. We found that reworking a melody with full tone or greater pitch changes was doable.

So, do we have any gripes? First up, although there's adjustable formant and this sounds great, you can only apply it on a global basis. Also, a few important block editing aspects including individual block timing are not yet implemented, although we understand they'll be included in a forthcoming update.

RePitch excels at natural-sounding pitch correction, but is also great for tweaking timing and levels, and if you dig in with the tools you can also achieve more extreme and creative effects. Overall this is an extremely well executed plugin. **cm**

**Web** www.synchroarts.com




**Cross plugin integration means you can easily use your RePitched track as a VocAlign guide**

## Audio Random Access

**ARA (AU and VST3) is a DAW integration technology that was developed by Celemony and Presonus, and allows extended communication between the host and plugin. With audio data, pitch, tempo and rhythm available for the whole song, not just at the moment of playback, plugins are better able to provide complex integrated processing. This is why titles such as Celemony Melodyne, Steinberg SpectraLayers and SynchroArts VocAlign use it.**

**That said, although ARA v2 is now available in most major DAWs including Cubase, Logic Pro X, Studio One and Cakewalk, it has taken a long time to become established, so you may want to double check your DAW is on the list. Using RePitch in your DAW you'll notice that you may have a choice between a regular plugin instance and an ARA instance. The latter will load your audio automatically and includes subtle but handy extras such as bar and beat scale.**

## Alternatively

**Antares Auto-Tune Pro**
**cm258 » 09/10 » $459**
It's expensive, but the original pitch corrector remains a slick, powerful performer that supports ARA

**Waves Tune**
**$249**
A credible alternative from Waves that's often available at a discount. No ARA support though

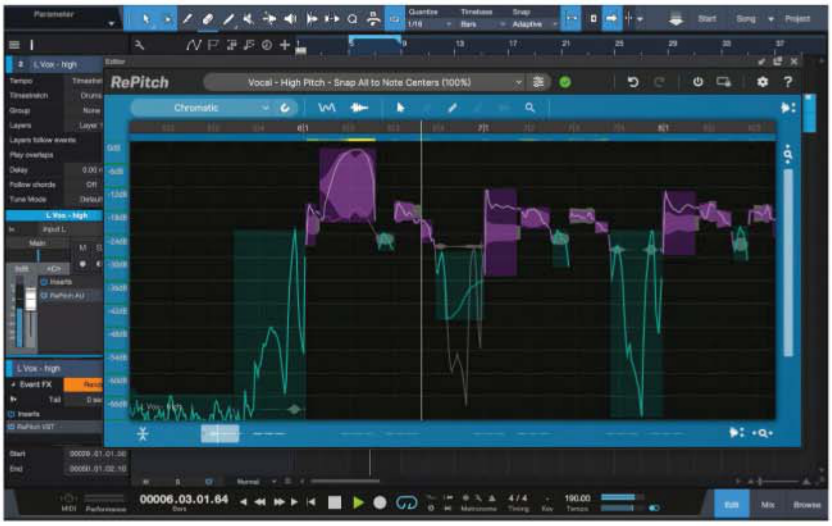
## Verdict

**For** High quality, artefact-free pitch correction
Split-pitched and unpitched processing
Separate pitch and level views
ARA support for suitably equipped DAWs

**Against** Some editing features have not yet been implemented

RePitch provides premium quality pitch correction, a great visual interface and excellent integration options

**9/10**




**RePitch's level view lets you make detailed changes to the volume curve**

# Soundware round-up

## Goldbaby
## Pulse $39

These nutters have gone patch-happy with a Pulsar-23 analogue drum machine to bring you a monster collection of one-shots, loops, and pre-mapped kits for all your fave DAWs. Inspired sounds abound in this expertly crafted collection, with a whole host of punchy drums coaxed from this experiment-rewarding machine.

Seemingly the fruits of hours of wire-swapping and knob-bothering, with some hits and sequences run through guitar pedals and other chains of commanding hardware for some next-level noises.

A great way of building a unique drum library, if you want to swerve the sizeable price tag of an OG machine, and countless hours of fiddling, to get these kind of results.

**www.goldbaby.co.nz**

**9/10**

## Hydratek
## THRON €14.99

200+ lairy loops, pulled from the pocket-sized PO-14 bass synthesiser, and processed within an inch of their lives, for maximum bottom-end badman bizness. These 120bpm-geared grooves are ready to be bolted onto your ongoing techno, electro, cyberpunk and glitched-out chip-flipped productions. With the cone-bothering frequencies covering everything from clean and acidy sounds, all the way down to sub-heavy low tones.

You also get bonus AI artworks, for the more adventurous amongst you, as well as a PDF guide and demo mix, to make sure you get the most out of the madness.

**www.hydra-sound.com**

**7/10**

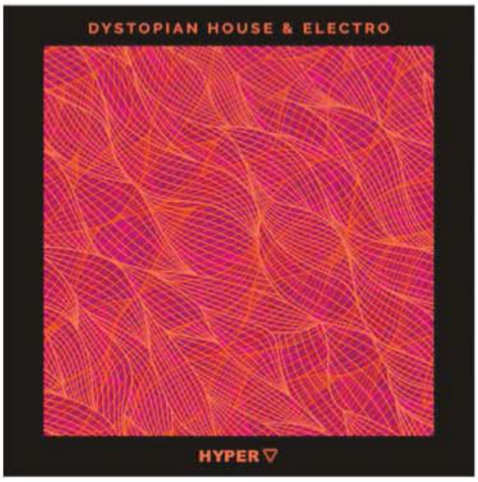
## Sample Tools by Cr2
## Limo Tech House £15.99 or 300 Credits

Machine-built samples and sounds, taking you through six shades of tech house, via some supremely well stocked construction kits. There's hypnotic and iconic synth sounds, which glide effortlessly over the heavy bass grooves, retro drums, and trippy percussion lines.

Top stuff, then. Fully loaded with all the track-starting elements you'll need to make your own mesmeric minimal masterpieces in minutes.

**https://sampletoolsbycr2.com**

**7/10**




Hyper

## Dystopian House & Electro £30

As you read this, society continues to collapse. The divisions between us grow ever wider, as the pillars of decency and community crumble to the ground. It's End Of Days, people. So, let's get that party started!

To soundtrack the inevitable forthcoming apocalypse, we have this darkly delicious set of samples. From eerie electro to haunting house, each sound lovingly laboured over in this collection has just the right top notes of unsettling spookiness to really capture the mood of a dying planet, dancefloor first. Enjoy!

**https://samplemarket.co.uk**

**8/10**

Bingoshakerz

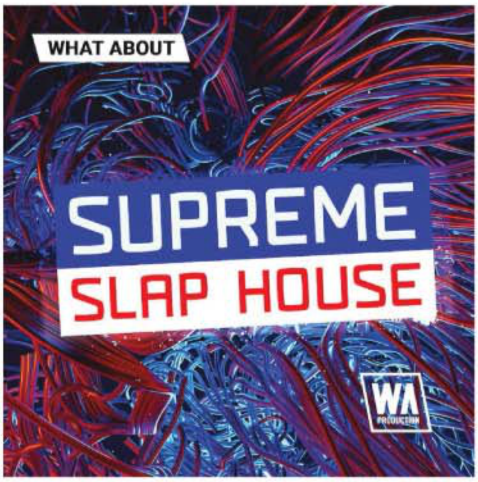
## Organic House $20.95

Step right up! This is a 100% all-natural selection. No additives or chemicals have been added to these dreamy and progressive samples. Every last loop and MIDI file in this 1GB collection, from blissful woodwind sounds to solid-as-oak drum beats, have been built from the finest ingredients. With spiritualised chords, heart-warming basslines, and atmospheric pads so achingly beautiful you'll weep tears of actual joy down your rosey cheeks.

And, if you buy today, you'll get a sense of internal well-being thrown in, at no extra cost!

**https://bingoshakerz.com**

**8/10**




W. A. Production

## Supreme Slap House $12.50

A smooth and silky set of all the Brazilian bass beats, soothing EDM melodies, and deep dancefloor rhythms found at the heart of this celebrated sub-genre.

Broken into five cool construction kits, and bonus Serum presets and MIDI files, this collection covers all the well-crafted components that make this music groove. From claps and crashes, to drum and musical loops, each loop and one shot is dying to do its duty for you, in your next slap house anthem.

**https://www.waproduction.com**

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Beatport Sounds

## Tech House £17.95

A hot batch of bread 'n' butter beats for tech house heads wanting to strengthen their go-to loop libraries with some reliable and reusable sounds.

There's a ton of great SFX and pumping basslines to play with and a strong selection of tough drum hits to pick though. Or, even jam with when you're DJing up a storm, by simply dropping the loops into the slots of your performance software of choice, in the mix.

**https://sounds.loopcloud.com**

**8/10**

# Soundware round-up

## Zenhiser
## **Warmth** £46

Top-tier vocal pack for house and techno tracks needing a little heat. The singing sounds inside come in both loop and individual stem formats and cover everything from lead lines, riffs, melodies, and light paddy chords to a wealth of other toasty top notes.

And, you get a gang of other one-shots and MIDI files, scorching stems, loops and drums to add to the pot.

All in all, a multi-genre selection of steaming hot vocals, just waiting for your warm welcome.

**www.zenhiser.com**

**8/10**

### Mode Audio
### **Gradient** £20

1.38GB of rich and experimental guitar textures, all of which are perfect for weaving into your ethereal beats or atmospheric dance tracks. The 100 evocative and ambient samples here range from 28s to 1m30s. And they've been created to add some warmth and weight to your music, as these waves of sound wash through your arrangements. The deep bass playing holds down the low end, leaving room for up-front lead lines to hog the spotlight, if needed. Making for a great choice of harmonically varied sounds, superbly recorded, for adding an emotional punch to your work.

**https://modeaudio.com**

**7/10**

### Histibe
### **Rare Breakbeat & Bass** £37.95

Oof! Buckle up for a seriously screw-faced set of hair-raisingly, raucously rabid samples. The 500MB of original loops and one-shots bursting out of this pack dabble in devastating dubstep, whomping D'n'B, chemical beats, and other splintered sub-genres that live for heavy drums and heavier basslines.

There's glitched drum loops, murderous snares and kicks, as well as some cutting edge bass and synth lines and stepped on vocal takes. Speeds run from 90 to 140bpm. You know what to do...

**www.loopmasters.com**

**8/10**

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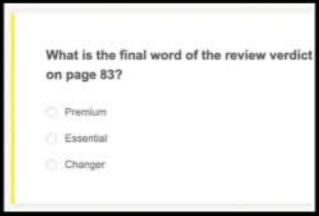



**02** Click 'Start Quiz' and you will be asked a series of three randomly generated security questions to check that you've bought the magazine. And that's it! You can now download your content.

**03** If you enjoyed that issue, you can still purchase our back issues via **bit.ly/pocketmags–cm** and downloads for those will be kept at **filesilo.co.uk/computermusic**

# >Free software PC MAC

# Best of the year: 9 free plugins!

This month we have the best nine free plugins we have given away in 2022, all in one issue, you lucky people. Download them now!

**> It's a very special end of the year issue and we're celebrating all things 2022 by giving away some of our best bits – in this case, it's nine of the best of our free plugins of 2022!**

As you very probably know, here at *Computer Music* we are big on giving away tools to make your music production efforts easier. Our very own *Computer Music* Plugin Suite of tools has become world famous, and we're celebrating it in this issue by giving away some of the additions made to it this year.

Back in June we had one of the biggest overhauls to the Suite ever. In reality this was more out of necessity rather than something we'd been looking forward to doing, thanks to many of the older plugins becoming either too clunky or simply not working on the latest operating systems This was particularly problematic for Mac users, with the shift to 64-bit only, and authentication issues for the last couple of OS versions…

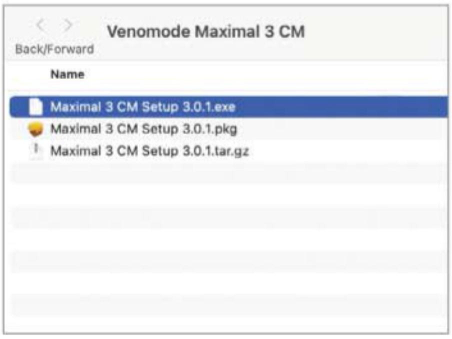
However, this didn't stop us updating the Suite, and here we present you with nine of the best additions to it from the last year. Included in the nine, we have JMG's Hyperspace CM2 (a fantastic reverb), the brilliant Hornet Multicomp CM compressor, plus Dopesonix Beat Machines 1, 2 and 3. There's pretty much everything you need to produce great music: synths, beats and effect plugins!

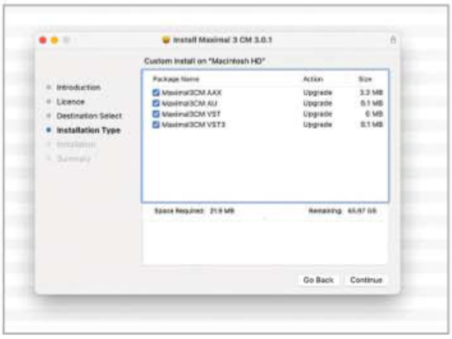
Remember, the CM Suite is available online (this month you can find it at bitly.com/cm317downloads) and all you need to get the plugins is your copy of *Computer Music*.

As ever, if you like the CM versions of these plugins, why not take a look at the developer sites for more information on any other versions? Enjoy this nine-plugin giveaway – we think it's our best ever!

Download the accompanying video and the MIDI/audio files at **bit.ly/cm317downloads**

## > Step by step 1. Venomode Maximal 3 CM: download and installation



**1** > Venomode Maximal 3 CM is included in our free software resource, now available via bitly.com/cm317downloads. Navigate to the issue, take the quiz and download the 'How to get Venomode Maximal 3 CM' instruction text file.

**2** > Open this text file to find the required download links. Select the correct link for your platform (PC, Mac or Linux) and download the installer file.

**3** > Run the relevant installer file (either .exe, .pkg or .tar.gz depending on your OS). Maximal 3 CM is available in a number of plugin formats, so at this stage you may also want to choose which ones to install (AU, VST, VST3 or AAX).

## > Step by step 2. Navigating the plugin

**1** > With Maximal 3 CM installed, load up an instance and get acquainted with its controls. The top bar includes the preset navigator, access to the manual, the settings cog (see below) and an option to check for updates. Over on the right-hand side you've also got the overall plugin bypass button.

**2** > The settings cog opens a small panel and here you can access the GPU hardware acceleration (on/off) and also the window scaling. You have a choice of six settings for the latter, so it easily caters to different screen sizes and resolutions.

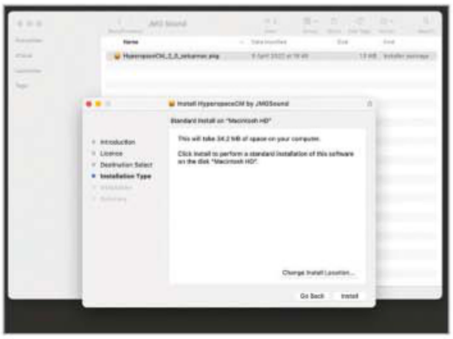
**3** > Maximal 3 CM includes a maximiser graph display, which is a fold-down panel below the top bar. This features a frequency analyser and gain reduction curve. To open and close this panel, use the graph icon on the Maximiser panel.

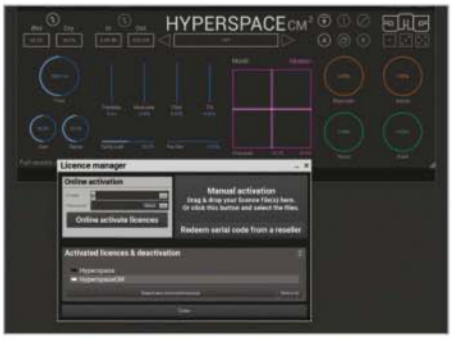
**4** > Maximal 3 CM's key controls are in the main Maximiser section. There are four parameter knobs and two sliders. The knob controls are Attack (0% to 100%), Release (1ms to 10sec), Lookahead (0.0ms to 5.0ms) and In Gain (-24 to +24dB).

**5** > Limiting is set using the Threshold slider (0dB to -24dB) and Ceiling (0dB to -24dB) slider next to the meters. These meters also indicate gain reduction in pink. Next to the graph icon you've also got an individual bypass for the Maximiser section, and this leaves just the In Gain control active.

**6** > Maximal 3 CM also has proper stereo input and output meters on the right hand side. These are twin tone meters that indicate both RMS and peak levels as well as various loudness unit readings, and we'll look at these on the final page. Check the in depth PDF in the downloads folder for more details on using this plugin.

## > Step by step 1. JMG Hyperspace CM2 Download and installation



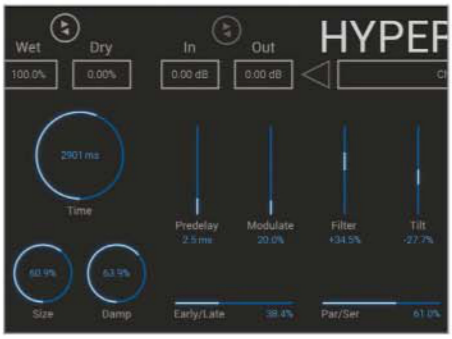



**1** > Hyperspace CM$^2$ is included in our free software resource, now available via bitly.com/cm317downloads. Navigate to the issue, take the quiz and download the required Hyperspace CM$^2$ installer (both Mac and PC versions are there).

**2** > Hyperspace CM$^2$ requires a licence file (Hyperspace CM v1 users can use their current licence). Head to https://unitedplugins.com/HyperspaceCM/, create an account (if you don't have one) and purchase the free licence. This will then be available in your user area so you can download it and authorise the plugin manually or online.

**3** > Run the relevant installer file. Once complete, launch your host DAW and load up an instance of Hyperspace CM$^2$. Right click on the plugin background, launch the licence manager and login to your United Plugins account to authorise. Alternatively download a licence file and drop that in manually.

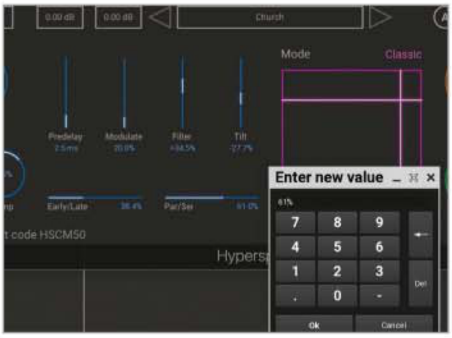
## > Step by step 2. Navigating the plugin

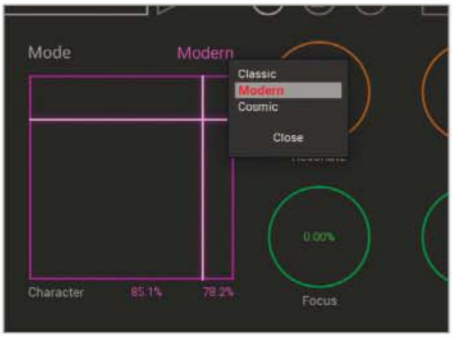


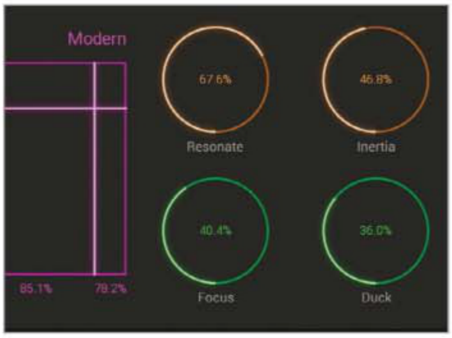

**1** > Now let's take a look at Hyperspace CM$^2$'s features. Load an instance on an auxiliary bus and grab a preset from the preset tab. We've loaded in Church. You'll see the presets are categorised by size, and, as mentioned, version 2 increases the preset count considerably.

**2** > On the top left are the Wet/Dry controls and In/Out levels. Use the little arrow icons to link each pair of controls. We have our reverb set up as an auxiliary, so we've linked the Wet/Dry controls and set the Wet to 100%, and this makes the direct level 0%.

**3** > To keep things visually clear, Hyperspace CM$^2$'s key parameters are colour coded. The blue controls are the main reverb parameters and include Time, Size and Predelay. You've also got a combined high/low pass Filter and Tilt-style EQ to help tailor frequency content.



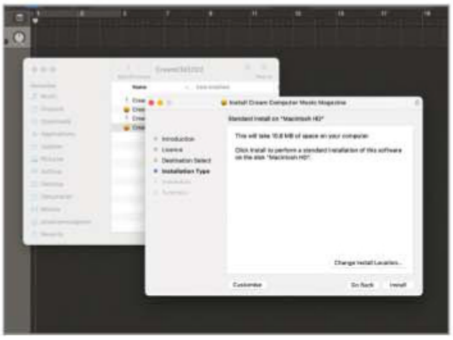

**4** > Main controls also include parameters for early and late reflections. Early/Late is a straightforward balance control, while Par/Ser affects how much these are fed in series or parallel from the input. Try different settings. You'll find a more serial setting creates more resonances and a far more coloured metallic effect.

**5** > The pink section is home to the Mode option and XY pad. These are key creative aspects of Hyperspace CM$^2$ and let you select the core algorithmic structure (Mode) and then manipulate its sound using the XY control.

**6** > Hyperspace CM$^2$ has four controls for multiple aspects of the sound. These influence dynamics and the noise/tonal aspects). The Orange controls apply comb filtering or freeze the reverb tail. Check the in depth PDF in the downloads folder for more details on using this plugin.

Download the accompanying video and the MIDI/audio files at **bit.ly/cm317downloads**

## > Step by step 1. Kirnu Cream CM Download and installation



**1** > Kirnu Cream CM is included in our free software resource, now available via bitly.com/cm317downloads. Access to the software is limited to purchasers of the magazine. To unlock the content for a specific issue, navigate to the issue, and take the quiz.

**2** > Once you've answered this, you can then download the required Kirnu Cream CM instructions and installer.

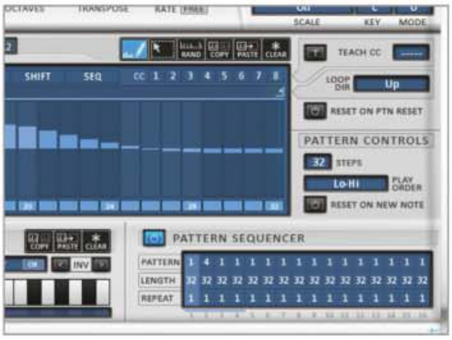
**3** > Now run the Installer. Launch your DAW, make sure it scans the new plugin and then open an instance. You'll find the plugin in your typical VST/AU folder, although Logic Pro users should note that it will be in their MIDI FX folder.

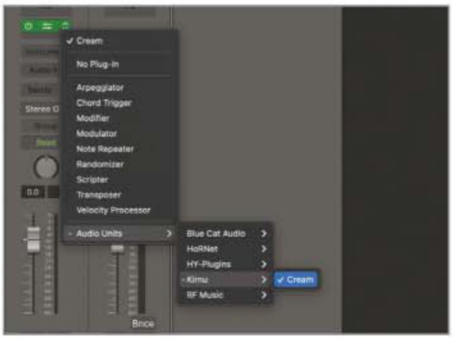
## > Step by step 2. Navigating and connecting

**1** > Now let's run through the main features and layout. Load up and open an instance of Cream CM. You'll see the interface has a number of regions. At the top is the main arpeggiator with typical settings including Rate, Octaves, Swing and so on.

**2** > This works in conjunction with the Pattern Controls on the right, and specifically the number of Steps, and the eight Play Order settings (Hi-Lo, Lo-Hi, Reversed and so on). There are also a bunch of categorised arpeggiator presets loaded via the menu bar at the top.

**3** > Dominating the middle is the 32-step Pattern section. This illuminates the notes generated by the arpeggiator as it plays. Significantly, it also provides a number of ways to change how those notes are played on a step-by-step basis, and you'll see various tabs including Order, Length, Accent, Transpose.



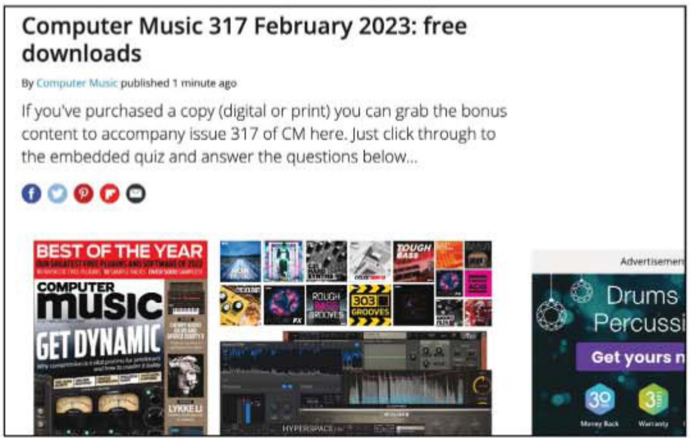


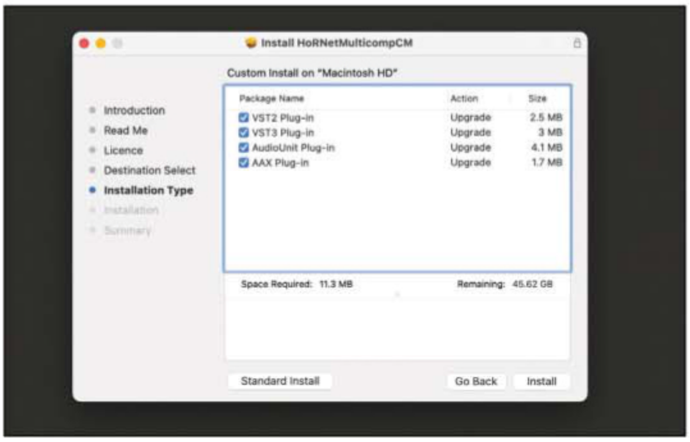
**4** > Cream CM has four different patterns and these can also be arranged in the Pattern Sequencer. This has four slots and you can define how many times (Repeat) and duration in steps (Length) for each component pattern. This provides an additional creative tool once you have your patterns up and running.

**5** > Using Cream CM usually involves routing its MIDI to a MIDI instrument track. Here in Cubase 11 we've loaded Cream CM as a MIDI instrument and then on the destination MIDI instrument track selected Cream CM as the input source and input channel. Now with both tracks armed, Cream CM is triggering the target instrument.

**6** > Most DAWs use a system similar to Cubase, but check the specifics. Logic Pro users can insert Cream CM as a MIDI FX. This insert slot is available on the instrument track and makes getting started quite a bit simpler. Check the in depth PDF in the downloads folder for more details on using this plugin.

## > Step by step 1. Hornet Multicomp CM Installation

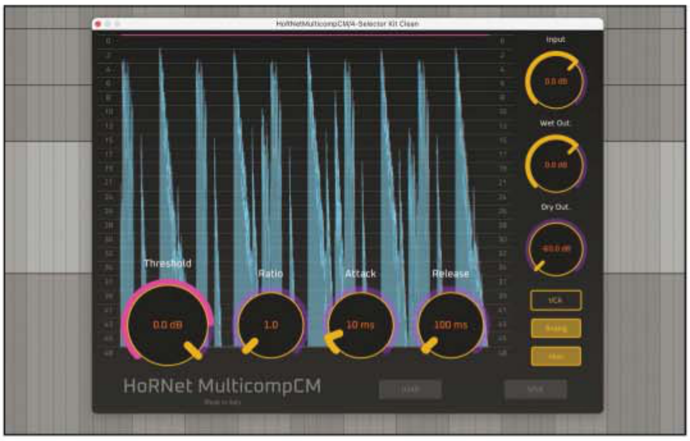



**1** > Getting up and running with MulticompCM is really straightforward. It is included in our free software resource, now available via bitly.com/cm317downloads. Navigate to the issue and take the quiz related to this issue.

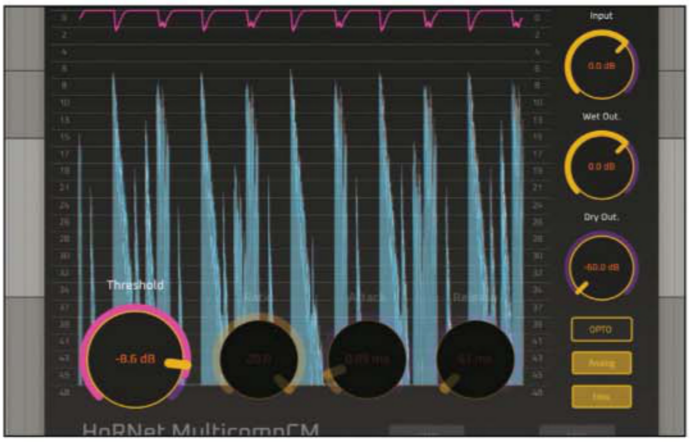
**2** > Once you've unlocked the issue, navigate to the software section and download the instructions and then the correct installers for your platform. Then install the plugin. HoRNet MulticompCM requires no serial number or authorisation, so once you've installed it, load up your DAW and you should be good to go.

## > Step by step 2. Navigation



**1** > Open an instance of MulticompCM. The plugin is dominated by a visual display. Load up some audio and hit play and you'll see the display is filled with a real time waveform visualisation. You should also see a pink line along the top, which we'll return to shortly.

**2** > Set the Input level and output blend (Wet Out/Dry Out) and choose from three compression types – VCA, FET and Opto. Further options include Analog, based on HoRNet's AnalogStage processor, and Hiss, to switch on/off the analogue emulation hiss component.



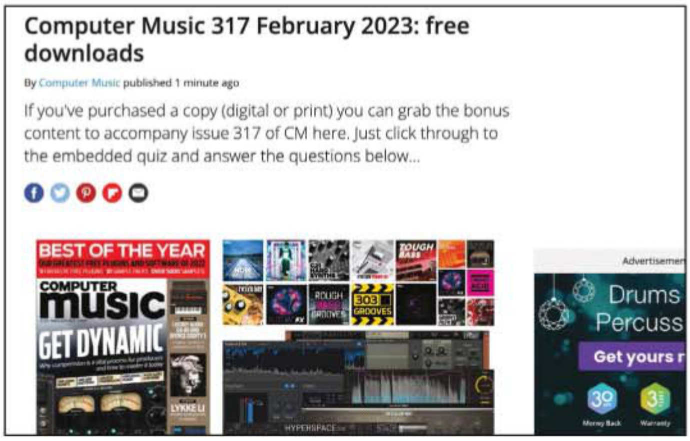

**3** > Along the bottom are the main compression controls. The threshold includes a pink halo showing the level of the internal side chain. The behaviour of the other three controls depends on the compressor selected, eg choose Opto and all three become inactive.

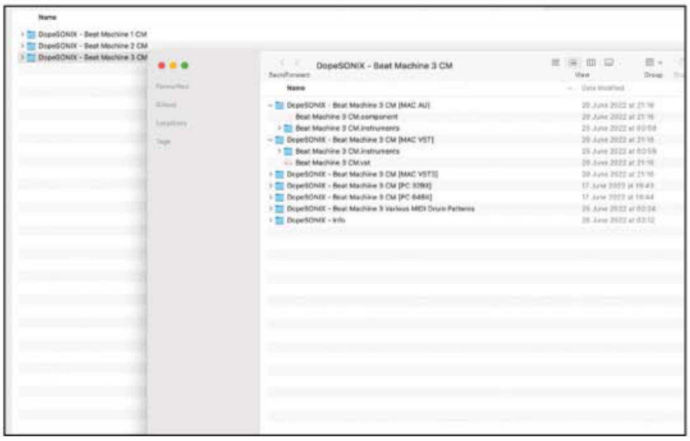
**4** > The pink line plots the action in real time. Lower the threshold and compression begins. It ties in with the pink halo on the Threshold control. When this halo exceeds the threshold, compression happens. Check out the PDF in the downloads for more on using the plugin.

Download the accompanying video and the MIDI/audio files at **bit.ly/cm317downloads**

## > Step by step

### 1. Dopesonix Beat Machines 1, 2 and 3 installation



**1** > Getting going with the Beat Machine CM plugins is simple. They are included in our free software resource, now available via bitly.com/cm317downloads. Navigate to the issue and take the quiz related to this issue.

**2** > Navigate to the software section and download the installers for your platform. Unzip the archive and you'll find plugin files for each one. Copy them and their instrument folders to the relevant AU, VST or VST3 folder. You'll find instructions in each plugin's PDF manual.

## > Step by step

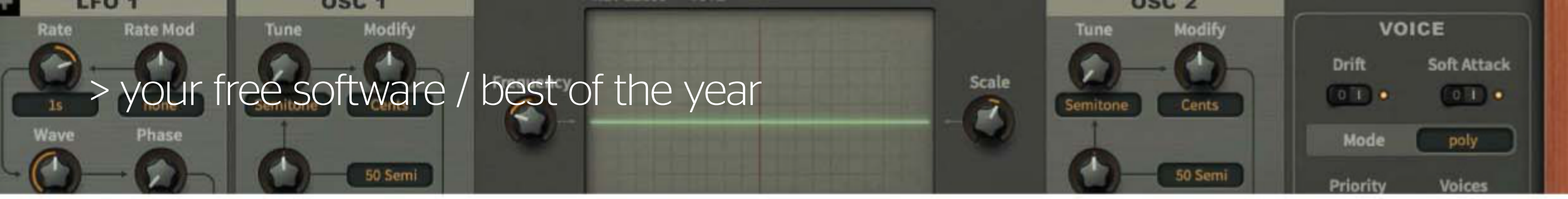
### 2. Navigating the plugin

**1** > The three Beat Machine CMs have similar features but slightly different layouts. We've loaded Beat Machine 1 CM. It launches with a preset loaded. Click the patch selector for other Beat Machine 1 CM presets, or use the Exp Slot button to navigate to the other packs.

**2** > Each kit includes four (Beat Machine 1 CM) or five sounds (Beat Machines 2 CM and 3 CM) and these are pre-mapped from C1 upwards. But you can also trigger them on the plugin using the pads or mini keyboard. Each sound gets its own level fader and pan pot.

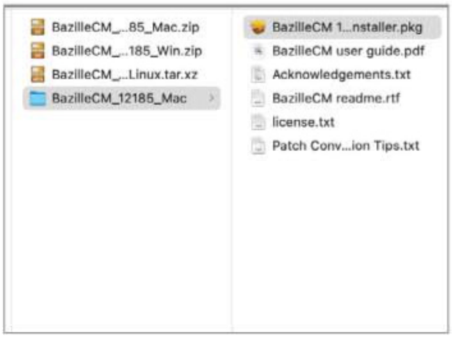
**3** > Each Beat Machine also has some global parameters, including high or low pass Filter, Reverb, Pitch, output Volume and output meters. These affect the overall stereo output, but each plugin is also available in multi output format, and here things are slightly different.

**4** > Load a multi output instance and you can route each sound to its own output. You'll also find that individual outputs bypass the global effects, as these are only applied to the stereo output. Check out the PDF in the downloads for more on using the plugin.





# > Step by step 1. Getting started with u-he Bazille CM




1 > Getting up and running with u-he Bazille CM is really straightforward. It is included in our free software resource, now available via bitly.com/cm317downloads. Navigate to the issue and take the quiz related to this issue.

2 > Scroll to the Software section. We have put Bazille CM in a separate folder there with Mac, PC and Linux installers in the folder for one download.

3 > Open whichever u-he Bazille CM folder you require and run the installer file. You may want to select from the choice of plugin formats on offer (AU, VST, VST3 or AAX).

# > Step by step 2. Main features

1 > Once installed, Bazille should load into your sequencer as any other plugin, no serial numbers required here though. Load it onto a MIDI channel (as shown here in Live) and load it up. We've detailed the main component modules over to the left. Let's now look at some of the other great Bazille CM features.

2 > We'll start with the synth presets. Click on the Presets tab at the left side of the synth to open this window. Presets are shown by author or type, and should include a pack of *Computer Music* presets as given away with the synth six years ago. If not, we've included them in the Tutorials folder at FileSilo. Use the instructions, bottom right, to load them.

3 > Now right (or Control)-click in the left-hand Folders pane for further options. You can also drag patches between folders, easily add more (see below), tag patches as favourites and much more. When you create your own patches, simply hit the Save button to store them in the User folder.

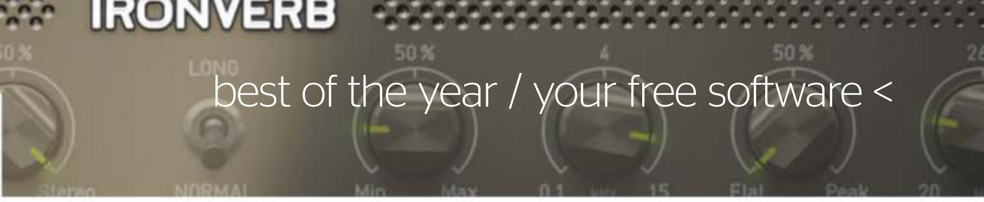
4 > Bazille CM lets you create your own synth architecture with virtual patch cables to wire together various modules. Click on a grey output (outlined left above) and drag the cable that appears to any grey input (outlined right). To delete a cable just click the output and drag it away from it.

5 > For hardware modular synths, the signals will either be audio or modulation but there are no restrictions here. In fact you can even plug modules back into themselves, or use them to modulate their own controls. It might not make a sound but you can give it a try! Check out the PDF in the downloads for more on using the plugin.

POWER TIP

## > Adding presets

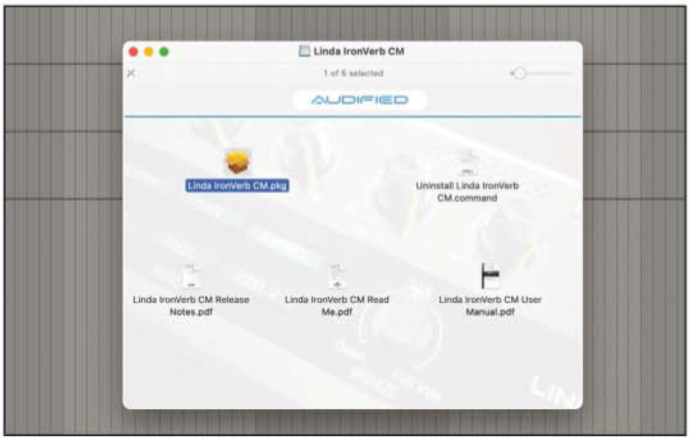
You should have a **cm** pack of presets included. If not, download them from the Bazille Tutorials Folder at File Silo which also has an in-depth PDF for programming Bazille and many tutorial files. To load these (or any other) presets, right (Control)-click the Local folder in the Bazille CM presets page. Select Open in Finder and you'll see Bazille CM's patch folders in your OS's file browser. Create a folder called CM Tutorial Presets and copy the contents of our tutorial patches folder in there. Go back to Bazille CM and select Refresh to see the folder.




Download the accompanying video and the MIDI/audio files at **bit.ly/cm317downloads**

# > Step by step

## 1. Audified Ironverb CM Installation



**1** > Ironverb is included via bitly.com/cm317downloads. Navigate to the issue, take the quiz related to this issue and grab the instructions. There is a link and special discount code. Audified will then email you a serial number and links to access the plugin installers.

**2** > Download and run the installer for your platform. You'll find you need to enter your name and your personal serial number to install the plugin. Once you've done this you can choose which formats you want to install (AU, AAX, VST3).

# > Step by step

## 2. Navigating plugin

**1** > IronVerb CM is simplicity itself. Load an instance as either an auxiliary or insert. You'll find the Wet and Dry controls in the bottom right. Adjust these to match your chosen signal flow. Click the preset bar on the bottom left to load a preset from the drop-down list.

**2** > The first thing to say is Audified has, tantalisingly, left all the controls from the full version visible and alas most of them you can't use. However, and this is handy, you can still see the parameter positions. Page through a few presets to see this in action.

**3** > There are three important aspects to IronVerb CM's sound – the core algorithm (Mode), the Ironize effect and the size mode (Normal/Long). Page through the presets and you'll see these parameters changing – Mode is on the right of the preset display. Check out the preset Large Metal Box and you'll see it's set to Full Iron.

**4** > Rounding things off in the top left of the plugin you can access various functional aspects including copy/paste, bypass and plugin window scaling. The Audified logo menu includes website links, update checker and also a link for the manual. Check out the PDF in the downloads for more on using the plugin. **cm**

Download the accompanying video and the MIDI/audio files at bit.ly/cm317downloads

# Best of 2022: Samples!

Celebrating our Best Of The Year issue, here are some of the best sample packs we gave away in 2022. Download them all from **bit.ly/CM317_downloads**

## Noir Music

**Back in April 2022 we were travelling north to the frozen wastes of Scandinavia to cash in on the success of a whole genre of dark and twisted murder mysteries. Both of our sampling experts, Groove Criminals and Cyclick Samples, came up with packs of evocative soundscapes inspired by the north. And murder. Those who kill? Those who sample, more like. Here's Robbie from Cyclick on his matching pair of Noirs…**

"These two sample packs have been created to conjure the tense, brooding soundscapes of the modern noir, as perfected by the many series produced in Scandinavia. The raw winds, icy cold and melancholic rain were, somewhat painfully, kept in mind as the musical and atmospheric samples were created."

**On Noir Music he says:** "Pianos, guitars, a Mellotron, a splash of synths and a smattering of drums make up the looped lines folder which spans across four tempos. The A-D suffixes indicate lines that were created together. Some of the drum hits were sampled off as beats were made, while the Mellotron, guitars and pianos were put to use to make a set of one-shot chord hits. These have the chord names in their filenames for the curious, but most are some form of minor or diminished with any major component offset with a few minor ones – can't get too hopeful… it's noir!"

## Noir Atmosphere

**Turning his attention to his second Noir pack, Robbie from Cyclick adds the following detail…**

"Strings, pianos and a Mellotron (the Arturia one) were put to good/bad use with tons of reverb, compression (to keep things level) and various other flavours (definitely the Eventide H949) to put together a set of eery, haunting and often quite nasty loops and string one shots to summon up those wintry northern European atmospherics. Note: the loops in this section are made to be seamless so the start and end points may clip if played as a one shot, so just add a fade in/out to the first/last instance or use a little attack/release if dropped into a sampler."

### SELECTED STUFF USED

**SOFTWARE**
- Arturia V Collection
- Steinberg Nuendo 11
- UAD plugins
- Eventide plugins
- Soundtoys plugins
- iZotope N2/O8 and Neoverb plugins
- IK Multimedia Amplitube 5
- NI Kontakt 5
- LiquidSonics Seventh Heaven Pro
- FabFilter Volcano 3 and Timeless 3

**GUITARS**
- Gretsch Electromatic G5122
- Squier Jazzmaster Vintage Modified
- Musicman Stingray bass (1977)
- Danelectro Dano '63 baritone
- Focusrite ISA 828 preamps

In May 2022, we embarked on a (longer than we thought) synth journey through the last 60 years, with samples to match. Here are the '80s and '90s...

# The 1980s by Cyclick

**Robbie from Cyclick on his 1980s samples and a decade where the synth went 'pop'...**

"The 1980s was awash with synths, and digital processing was providing endless new sonic possibilities. With this in mind, the synths used for this sample pack are all period specific, as in models that were introduced in the 1980s. These include the Yamaha DX7, Casio CZ, CMI/Fairlight, Synclavier II, Prophet-5VS and Roland Jupiter-8. On the processing side, the reverbs were kept to AMS and Lexicon and everything running to virtual tape (UAD Studer A800). The lines are split into instrument types (poly, pad, lead and bass) with some providing one-shot chord hits and four octave multisamples.

"The multisamples (mostly) run from C1 to C5 and have their sustain loop points embedded into the WAV file for easy transportation into samplers. A set of SFZ files are also included to save any manual key mapping. All multisamples are run with four even-spaced notes per octave (C, D#, F# and A)."

**SOFTWARE USED**

**Steinberg Nuendo 11**

**Arturia V Collection Synths and MELLO-FI plugin**

**iZotope RX 9 Advanced**

**UAD plugins**

**Eventide plugins**

**Soundtoys plugins**

**iZotope Neutron 2/Ozone 8**

# The 1990s Grooves

**Groove Criminals completed our time travel sample journey by hitching a ride in an old Vauxhall from the 1990s. Here's Oli...**

"This sample pack has echoes of acid house, rave, jungle, house and techno. Although perhaps not as iconic as some of the synths released in the '70s or '80s, we've chosen a handful of the classic machines released in the decade.

"On the software side, Korg's M1 is stacked with all of the ROM cards that were available as extras (without the hassle) and sounds fantastic. Hardware-wise the Access Virus B is a classic virtual analogue module and one we still turn to for lush pads or punchy basses. It's got an in-built arpeggiator and some very '90s but usable on-board effects. The Novation Super Bass Station, a rack-mount analogue mono synth released in 1997, kick-started the return to true analogue synthesis after a decade or more of digital rule (alongside its earlier small keyboard brother).

"We finish with loops and sounds from the Quasimidi TechnoX, a very '90s-style rompler which really characterises the vibe of the decade."

**SELECTED GEAR USED**

**Access Virus B**

**Korg M1 softsynth**

**Novation Super Bass Station rack**

**Quasimidi TechnoX**

Download the accompanying video and the MIDI/audio files at bit.ly/cm317downloads

# Best samples (continued)

In issue 308, we brought our synth history right up to date with several new sample packs celebrating C21. Here we choose the hard and soft options

## C21 Hard Synths

**Oli from Groove Criminals detail his two synth packs which were neatly divided by hardware and software...**

"We've concentrated on a few synths that we love: Korg Volcas, TE Pocket Operators, Behringer reissues, Arturia Microfreak, to name a few.

"Sadly the Prophet Rev 2 is only on loan to us but it's a lovely modern polysynth with a proud history. We love the ease of modulating any of the controls: everything from spiky rhythmic percussion sequences to lush moving pads. We love the Mother 32 and Monologue monosynths for their powerful sound and quirky nature. The Mother 32 with its extensive semi-modular patchbay easily talks to our Eurorack/CV setup. For modern synths there's our Soma Lyra-8: eight voices, paired in four groups of two and played using touch contacts rather than a keyboard, it's a drone/noise/strange texture machine and we love it. We've also included a few textures fed through a Moogerfooger LPF with various expression inputs being controlled by the OBNE Expression ramper."

**GEAR USED**

**Sequential Prophet REV2**
**Korg Monologue**
**Moog Mother 32**
**Roland TR-8**
**Soma Lyra-8**
**Moog Moogerfooger LPF**
**Old Blood Noise Endeavors Expression Ramper**

## C21 Soft Synths

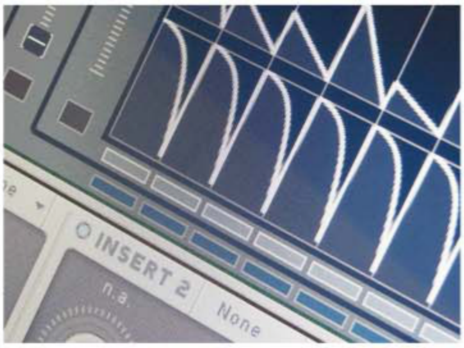
**Oli from Groove Criminals turned to the soft side with our final new pack of 21st century synth samples...**

"To pair with our 21st Century hardware synths sample pack, we have the software synth version! The last couple of decades have been just as kind to lovers of software synths as it has to hardware fans.

"Although there have been hundreds of great softsynths releases since 2000 (and we regularly use dozens of them), we have chosen arguably (in our personal opinion) two of the most influential, Native Instruments' Massive and Xfer Records' mighty Serum.

"Both of these softsynths have their fingerprints on several genres of electronic music and we love the modulation options and workflows on both, as well as the distinct differences."

"Massive has the samples arranged by atmospheres, FX, loops and pads while Serum has drones, effects and loops. There's also a Multis folder with eight multisample setups."



**SELECTED GEAR USED**

**NI Massive (V1)**
**Xfer Records Serum**

Having dealt with synths past and present in previous issues, in July we turned to the ghost of 'Synthmass Future' with these two sample packs

## Cyclick Futuristics

**Robbie from Cyclick Samples put together this dystopian set of synth samples from the future...**

"Who knows what the future will hold, but there is one thing of which we can be certain: it will be futuristic. With this profound thought in mind let's break down what's in this sample pack.

"**AlienTech [One Shots]** The source is a synth programmed in a non-musical way. A general umbrella under which an array of odd, non-earthly sounds gather.

"**Atmos [One Shots]** A selection of non-looped atmospheric sounds, with no transients or distinct elements.

"**NewWorldAtmos [Loops]** Looped sounds originating from the process started with the Atmos samples. Any oscillators are rendered non-musical with heavy processing and synth modulation plus lashings of reverb, delay, pitch shifting and filtering.

"**OffWorld [One Shots]** Less 'alien', but not sounds originating on Earth... at least, not in a futuristic/sci-fi sense.

"**SciFi-FX [One Shots]** One-shot samples that cover variations on the laser gun/beam sound. 'Beeeooowwww'... "

*There's more detail in Rob's PDF in the samples folder.*

**SELECTED GEAR USED**

**Arturia V Collection, GForce OB-E v2, u-He Zebra 2 synths Cableguys Curve 2**

**UAD, Eventide and Soundtoys plugins**

**FabFilter Timeless 3 and Volcano 3**

**iZotope Ozone 8 and Neoverb**

**Unfiltered Audio Dent 2 and Fault**

**Valhalla FreqEcho**

**LiquidSonics Seventh Pro Heaven**

**Sonic Charge Echobode and Bitspeek**

## Future FX

**Oli Bell from Groove Criminals was also busy in his time machine and gathered this set of sounds from the future:**

"We tried to mix between classic sci-fi/futuristic sounds and Foley-based. With the classics we broke out the analogue synths with a S&H mod source (SH-101, SH-09 ,CS5, Wasp) and applied that to pitch and filter for some 1977 droid burps and pharts. Zaps and lasers came from the same synths and any whose filters would self resonate like the Korg Monotron.

"The star ship sounds are from feeding raw synth or foley sounds into Audition and using Doppler, with light delay, modulation and tremolo.

"For atmospheric drones we used the Dementia DM1, a two oscillator drone synth with noise. It can be unruly so we ran it through the Moogerfooger LPF to control some high frequencies. We also modulated a couple of the LPF controls using some external CV."

**SELECTED GEAR USED**

**Adobe Audition**

**Glitch Machines plug-ins**

**Korg Monotron**

**Roland SH-101**

**Roland SH-09**

**Yamaha CS5**

**Behringer Wasp Deluxe**

**Dementia DM1**

**Moogerfooger LPF**

Download the accompanying video and the MIDI/audio files at bit.ly/cm317downloads

# Best samples (continued)

In issue 311, things got a little dirty as we explored the niceties of analogue processing, producing these two packs of filthy samples to go with it…

## Cyclick Dirt

**Cyclick Samples put together this pack of dirt samples. Here's what Rob said of his creations…**

"Dirt, scum, fuzz, filth, scuz, call it what you will; in the end it's all distortion. So here is a sample pack of distorted loops and one-shots to bring an instant dose of adulterated noise to proceedings. The distortion has all been generated with analogue devices, mostly stompboxes along with the trusty Culture Rooster. Sources were reamped through chains of pedals or via the mono Mixing Link which also ended in the WEM Custom Copicat tape echo from 1965.

"No two loops were allowed to use the same settings and pedals were swapped out in case the dirt became too similar. The only settings were used for the chord one-shots, which feature three classic keyboards (courtesy of the excellent Arturia V Collection) beaten up by transistors, transformers, valves/tubes, diodes and magnetic tape. The Nasty Guitar folder was done by plugging a Gretsch guitar into the Eventide Mixing Link chain, with feedback that occurred via the monitors. Drum hits were also collected as drum loops were created."

*There are more detail in Rob's PDF in the samples folder.*

**DISTORTION GEAR USED**

**Boss SD-1 & GE-7**

**Fender The Pelt Fuzz**

**UA Starlight Echo Station**

**Korg CMP-1 Compressor**

**Fuzzdog Bass BrassMaster**

**WEM Custom Copicat valve tape echo**

**Dreadbox Komorebi**

**Sandpit NKT214 Germanium Fuzz Keeley Fuzz Bender**

**Dr No Octofuzz**

**Danelectro Spring King**

**TC Hall of Fame/Viscous Vibe**

**Kokko Overdrive**

## Groovy Filth

**Oli Bell from Groove Criminals was also getting deep, down and…**

"We're getting grubby with a covering of analogue dirt! We've started with some filthy acid basslines that we've smeared in fuzz from a selection of our favourite fuzz pedals. We've included dry loops as well and tried (not successfully) to dial the destruction down to subtle(ish) levels.

"We ran beats through a few of our trusted dirt plugins. These include saturation emulators for some tape/vintage/cheap preamp goodness and Waves' excellent Lofi which has lots of options for adding dirt and noise to a signal. Our favourite plugin, and part of our secret sauce is AudioThing's Wires. Developed with Hainbach, it's an emulation of a Soviet wire recorder and brings beautiful grime to anything.

"We put the Korg Triton piano through the Mid-fi Scrape Flutter, an envelope controlled vibrato that really adds unpredictable oddness. Lastly we've included a healthy stack of dirty layers: tape noise, vinyl crackle and various types of hum and even some digital noise."

**OTHER GEAR USED**

**Catalinbread Antichthon**

**DBA Robot Clone**

**Bluff Chill Robodog**

**Raygun Youth Chaos Fuzz clone**

**Corruptor fuzz clone**

**Fostex portable turntable**

**Various cassette players**

**MeldaProduction MSaturator**

**ToneBoosters Ferox and TimeMachine**

**FXpansion Maul**

It was a beats theme in issue 313, so what better than two new packs of drum machine samples? All the beats you need...

## Cyclick Drum Machines

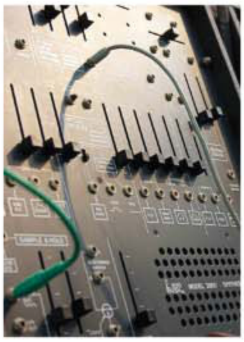
**Cyclick Samples beat us to it with their drum puns and produced our first pack of drum machines samples...**

"This sample pack has six kits of modelled analogue, synth-generated drum sounds. The seven components per kit have been hand/trackpad-carved from VA synths: the Modular, Synthi, SEM and ARP 2600 from the Arturia V Collection and the GForce OB-E. These were levelled and processed with an EQ, compressor and transient shaper. Each drum machine was sent to a pair of group buses for further compression, EQ, reverb, saturation, plus an exciter and limiter. The resulting loops are spread across seven tempos and each kit contributes a main beat and an alt mix through the second bus per tempo.

"The six drum kits are available as individual one-shot hits. There are multiples of most as the synths were programmed to have some movement in their VCAs and VCFs.

"This can be a long-winded way to create drum machines, but it is rewarding. And having made this, there are more Cyclick drum presets in the various synths used to revisit another day."

*There are more details in Rob's PDF in the samples folder*



**SELECTED GEAR**

**Arturia V Collection**
**GForce OB-E**
**Steinberg Nuendo 11**
**UAD plugins**
**Soundtoys plugins**
**Eventide plugins**
**iZotope Neutron 2 & Ozone 8**
**Sonic Seventh Heaven Pro**

## Drum Machine Grooves

**Oli Bell from Groove Criminals was also getting his drum machines to rock for issue 313...**

"We're very lucky here at GCHQ to have a collection of drum machines of all ages, and we raided them for some unusual examples.

"On the analogue front we have three machines that predate MIDI or programmable patterns. The EHX Rhythm-12 which dates from the late '70s has 12 presets, a tempo control and four sounds (that's your lot!). The Bentley Rhythm Ace has more and you can trigger more than one pattern which throws up some nice combos. Then the Korg Rhythm 55 has more presets and a lovely tone. The tempos for the loops for these boxes is roughly correct but all three fluctuate a bit, so be aware.

"To contrast, we also chose three digital boxes from the '80s onwards. The Alesis HR16-B has more electronic-based sounds with pitch and pan. More drum expander than classic drum machine, the Dynacord P20 is a large beast with six channels. Finally the Korg DDM-110 is a late '80s bargain machine with 8-bit drum samples and that lo-fi sampled drum sound of the era."

**SELECTED GEAR**

**Dynacord P-20**
**Korg Rhythm 55**
**Bentley Rhythm Ace**
**Electro Harmonix Rhythm-12**
**Alesis HR-16B**
**Korg DDM-110**
**OBNE Minim**
**Arturia Beatstep Pro**

Download the accompanying video and the MIDI/audio files at bit.ly/cm317downloads

# Best samples (continued)

We've had synths and drum machines, so in issue 314 it was time to roughen up your low end with two packs of dirty bass samples

## Tough Bassics

**The first of our gritty bass collections was honed by Cyclick Samples. Here's Robbie to tell us more about it...**
"Roughness can also be expressed as a lack of smoothness, and the bass sounds created for this sample pack are proudly just this! Analogue amplification stages have been grossly overloaded and a variety of fuzzes and distortions employed to bring the grit, dirt and nastiness. To many ears this may be no bad thing; I loved every second of generating this sandpaper bass collection. Each of the five main bass setups has been used to create a set of loops across eight tempos and have been captured as a set of seven multisamples. The seventh multisample is a variant of the Teisco short scale bass and Mutron III. The latter's setting were regularly switched between bassline takes and the two best were noted for multisample creation, a low-pass filter and a band-pass filter setting."

*There's more detail – including in depth information on the instrument setups and gear used – in Rob's PDF in the Samples download folder*

**SELECTED GEAR**

**Squier Precision bass (Classic Vibe 70s)**

**Epiphone Ripper bass**

**Musicman Stingray bass (1977)**

**Teisco short scale bass**

**Loads of pedals including Electro-Harmonix, Moog, Sandpit, Musitronics, Dreadbox and many more**

## Rough Bass Grooves

**Keeping the theme rough and tough, Oli Bell from Groove Criminals detailed his collection of dirty bass samples...**
"It's our usual routine of mixing both hardware and software to bring you some roughed up low end tones. Hardware-wise we threw our Mother 32 through the rather fab Holy Island Rorschach which is a separate spluttering fuzz and multi mode filter circuit. Each is controlled on the axis with a joystick providing hands-on audio destruction. We ran our trusty Behringer TD-3 through three of our favourite pedals to rough things up: the bonkers Catalinbread Antichthon, Bugbrand Baby Bugcrusher (a sample reducer that adds a fantastic vocal edge to the acid basslines), and Glowfly Glitchwave567 which adds fuzz and a ring mod vibe.

"On the software side we ran the usual set of softsynths through both distortion and bit crushers for that filthy, crunchy sound but also rinsed the Audiothing Wires plugin, a recreation of a Soviet-era wire recorder that brings some great ambient texture to whatever you feed it, and has been one of our go-to plugins for a while now."

**SELECTED GEAR**

**Moog Mother 32**

**Korg Wavestate**

**Behringer TD-3**

**Holy Island Audio Rorschach**

**Catalinbread Antichthon**

**Bugbrand Baby Bugcrusher**

**Glowfly Glitchwave567**

**Logic Alchemy**

**XFer Serum**

**Audio Thing Wires**

**Audio Thing Crusher**

**NI Driver**

Back in issue 305 we made waves with a waveform theme for our free sample packs. Here are the Digital and Analogue packs from Groove Criminals

## Digital Waves

**Oli Bell from Groove Criminals revealed how he came up with his first pack of waveform samples, this time of a digital nature…**

“It’s all about waveforms this month and here we have concentrated on digital synths. We have sampled the basic waveforms from a handful of favourites, so you can feed these into your softsynths and samplers, process them and use them as the foundation for more complex sounds.

“As well as some modern classic digital synths like the always surprising Microfreak and our workhorse Virus -B, we have also included some waveforms from the Yamaha TX81Z, a 4-operator DX in rack form, and our Casio CZ-1000 which uses phase distortion synthesis.

“The Yamaha PSS-470 is a mini key home keyboard with a very basic digital synth built in (and one of the first keyboards we ever owned back in the mists of time) and the Møffenzeef is a nifty drone synth with a small tabletop footprint.

“To go alongside the waveform samples we made some loops, including some of the Microfreak’s more interesting oscillator types like the Karplus Strong and some digital noise to top it all off.”

**SELECTED GEAR USED**

**Arturia Microfreak**

**Access Virus B**

**Casio CZ-1000**

**Quasimidi TechnoX**

**Møffenzeef MSG2**

**Yamaha TX81Z**

**Yamaha PSS-470**

## Analogue Waveforms

**Groove Criminals’ next pack switched the waveforms to analogue…**

“Again we have sampled the raw waveforms of our stash of analogue synths to give you a collection of simple, fat analogue tones.

“Alongside the classic SH-101 and Yamaha CS5 (unfairly overlooked compared to its bigger brothers), we’ve raided some more modern but just as classic analogue synths. The Moog Mother 32 has been a favourite for a while now due to its fat sound and small footprint as well as the Korg MS20 Mini which still sounds beautifully rough and aggressive.

“We’ve also thrown in  a couple of rackmount synths from the ’90s, the FAT FB383 is a fully analogue 303 clone and the Super Bass Station, another underrated two-oscillator gem from Novation. We’ve topped these off with Behringer’s Wasp clone.

“Finally, we threw some of the synths through pedals to distort the waveforms a bit. The Baby BugCrusher has been our bitcrusher of choice for years now and our modded Daddy O and Corruptor bring the fuzz.”

**SELECTED GEAR USED**

**Yamaha CS05**

**FAT FB383**

**Moog Mother 32**

**Korg MS20 Mini**

**Roland SH-101**

**Novation Super Bass Station**

**Behringer Wasp Deluxe**

**BugBrand Baby BugCrusher**

**Modded Danelectro Daddy O**

**Parasit Studios Corruptor clone**

Download the accompanying video and the MIDI/audio files at bit.ly/cm317downloads

# Best samples (continued)

We finish our Best Samples Of The Year with four packs of 303 samples – actually from 2021, but they're so good we couldn't ignore them!

## Cyclick Three-03

**Issue 303 was – clever eh – a TB-303 Special, so what else could we do? We asked our sample gurus to come up with four sample packs. This is what Rob from Cyclick said about the first of his packs…**

"The Roland TB-303 has been cloned many times, an early example being the Novation Bass Station in 1995. Though it's not just a 303 clone, it traded partly on some factory presets that specifically mimic the 303.

"For this sample pack, the Bass Station is used with these emulation presets, with MIDI control of the main tweaks used while recording lines and loops, including cutoff, resonance, env mod and decay. The lines were derived from straight-up keyboard parts and arpeggiator runs.

"Three batches were made. The first was with the Bass Station running through analogue outboard (see below). No further processing occurred. Each loop was recorded separately, with the controls tweaked in real time. These were recorded with either the saw (ramp) or square waveform and labelled as such. At the end, two multisamples were created from each waveform."

For more "behind the scenes" magic check out our accompanying PDF at filesilo.co.uk.

**SELECTED GEAR USED**

**Novation Bass Station Rack**
**Eventide MixingLink**
**Musitronics Mu-Tron III**
**Moog MF-101, MF-102 and MF-Trem**
**Universal Audio Starlight**
**Eventide Modfactor**
**Boss CS-3 and GE-7**
**Electro-Harmonix Octave Multiplexer, HOG, Doctor Q and Poly Phase**
**Fender The Pelt fuzz**
**Dr. No Octofuzz**
**Fuzzdog Bass Brassmaster and loads more (see PDF)**

## 303 Grooves

**Oli Bell from Groove Criminals then revealed how he came up with his first pack of 303-style samples…**

"While we don't have access to an original version of the ubiquitous silver bass box, we do have a handful of great-sounding clones. The TD-3 we ran raw (using its faithful reproduction of the 303's bloody annoying sequencer) and with its built-in distortion, which is fine but we prefer to use one of the collection of guitar distortion/fuzz pedals we have laying around for added crunch and fizz. We also used the Minim and Echopark to add some lush reverb and delay to the bass patterns.

"The Roland TB-3 we also ran dry and using its extensive built-in effects, mostly reverb, delay and distortion. Thankfully its built-in sequencer is slightly more user-friendly and we used that to program the sequences.

"Lastly we have the MC-09, one of a few slightly odd boxes Roland released in the early 2000s. This odd-looking beast has a 4-part looper, basic drum machine and effects, as well as two monophonic synth engines, both of which do a really lively 303 impression. Once again it's a pain to program and is rather counterintuitive to use, but you can (with a fair amount of swearing) coax some dirty 303-ish basslines out of it."

**SELECTED GEAR USED**

**Behringer TD-3, TB-3 and MC-09 Phrase Lab**
**OBNE Minim**
**Line 6 Echo Park**
**Modded Danelectro Daddy O**
**Electro-Harmonix Big Muff**
**Snarling Dogs Blue Doo**

# CM303 Acid

**More 303-style samples from Cyclick, and here's what Rob said about his textures and tones...**

"As an accompaniment to the 303 samples, this pack delves into '80s/'90s acid house for inspiration. There are three drum kits with two beats in each tempo, with two variants of each plus a set of hits in the Drum Kits folder. The synths were then created over these beats.

"Then a set of 303-style lines were coaxed from the Bass Station and fed, via the Little Labs Redeye, into a chain of pedals. These started with the Boss GE-7 for initial tone tweaks, then through the distortions/fuzzes into the Moogerfooger Ring Mod and then into the Eventide Modfactor and the UA Starlight delay. The Starlight then fed into the Thermionic Culture Rooster for EQ and some 'attitude', and from there into the G-SSL compressor, R24 EQ, Aphex Dominator and into AD converters."

As before, there's more detail in a PDF in the folder at filesilo.co.uk under issue 303.

**SELECTED GEAR USED**
**Novation Bass Station Rack**
**Moog MF-102 Ring Mod**
**UA Starlight**
**Eventide Modfactor**
**Boss GE-7**
**Dr. No Octofuzz**
**Fuzzdog Bass BrassMaster**
**Sandpit Umschwirren, Basstown Strangler and Scrambler**
**Proco Rat distortion**

# Acid Grooves

**Finally, Groove Criminals' second sample pack maintained a classic 303 feel with a batch of acid-inspired beats and basslines...**

"Here are some more acid-house-influenced samples to accompany the 303 pack (opposite). This time we concentrate on some beats using the TR-8 with its 727/606 expansion. We use some straight 909/808/606 kits and some beats that nicely mix things up across the machines. The 707 beats were programmed in NI Battery using single-hit samples taken from a TR-707/727 for some of that early acid house digital crunch.

"We couldn't resist dropping a few more TD-3 patterns using the software pattern editor, with the silver box synced to the TR-8 via MIDI. To give a few more non-303 options, we also rinsed our trusty '90s Roland Dance module that is packed full of those rave/acid house sounds.

"To top things off, we did some additional bass loops with the analogue Freebass which is another 303 clone, but we stepped away from the resonance (kinda) to create more traditional sounds. Finally we couldn't resist breaking out the Roland SH-101 too..." **cm**

**SELECTED GEAR USED**
**Fender Fat and Vintage Tele**
**Behringer TD-3**
**Roland TR-8**
**FAT Freebass**
**Roland Dance M-DC1 module**
**Roland SH-101**
**Flame Clockwork**
**Native Instruments Battery**

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- **FREE XILS Lab 3 CM softsynth**
- 2,950 FREE Samples
- Workshops: Sound Like Thomas Dolby

### ISSUE 315
December 2022

- Extreme FX: boost your creativity and perfect your sound
- **FREE T-RackS EQP-1A (offer closes 15/12/22)**
- 2750 FREE Samples
- Deadmau5 interview

### ISSUE 314
November 2022

- Power Up Your Music For Less: budget production guide
- **FREE Audified IronVerb CM (to 5/4/23)**
- 2600 FREE Samples
- Best budget interfaces

### ISSUE 313
Autumn 2022

- The Ultimate Beats Package including 3x FREE drum machines and 2600 samples
- **Exclusive interview with Kelly Lee Owens**
- Expert masterclasses

### ISSUE 312
October 2022

- Delay Tactics – your comprehensive guide
- **FREE best ever compressor plugin plus 1000 samples**
- Sound like Kate Bush
- **Best piano VSTs**

### ISSUE 311
September 2022

- Essential Guide to Analogue Dirt
- **2 FREE plugins plus 4330 samples**
- Interviews with William Orbit and more
- **Best tablets for music**

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### ISSUE 310
August 2022

- Get Mix-Ready Vocals (Without a Singer)
- **FREE Hyperspace² CM plugin plus three free sample packs**
- Create Aphex Twin pads and perfect wobble bass

### ISSUE 309
July 2022

- How AI is Rewriting the Way You Make Music
- **FREE Maximal 3 CM Plugin plus samples**
- 60 Years of the Synth, Part 3 – the 2000s and beyond!

### ISSUE 308
June 2022

- CM Plugin Suite 2.0 – our world famous suite of FREE plugins rebooted
- **FREE Electric Chill Pro Sample Pack worth $25**
- 60 Years of the Synth, Part 2 – the 90s

### ISSUE 307
May 2022

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Vault downloads available only from cm182 onwards. See **bit.ly/cmvaultfaq**.

> next month

# Next issue

## Take control of your software in 2023

We look at the future of hardware controlling your software. How to do it, the best products on the market, and the future of touchscreens, MPE and everything else that's control-based. It's the issue designed for the control freak in you...

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Two free bass plugins to add to the CM Suite!

**Freeware 2023**
A roundup of the best new free stuff you need to download now!

**The Guide!**
How to make your music sound great – wherever you play it!



COMPUTER music

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